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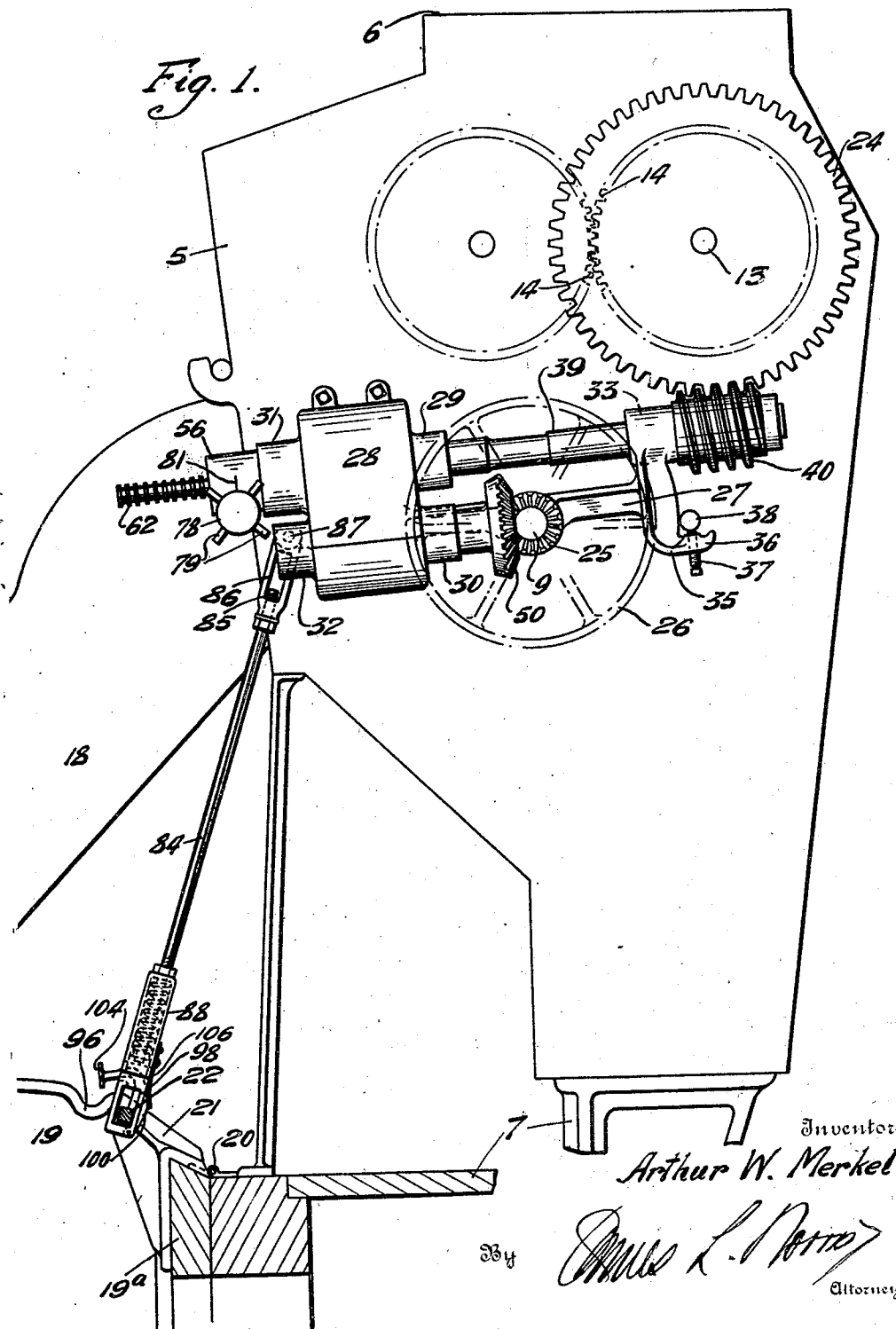
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A. W. MERKEL

COTTON GIN FEEDER

Filed July 10, 1923

3 Sheets-Sheet 1



Feb. 26, 1924.

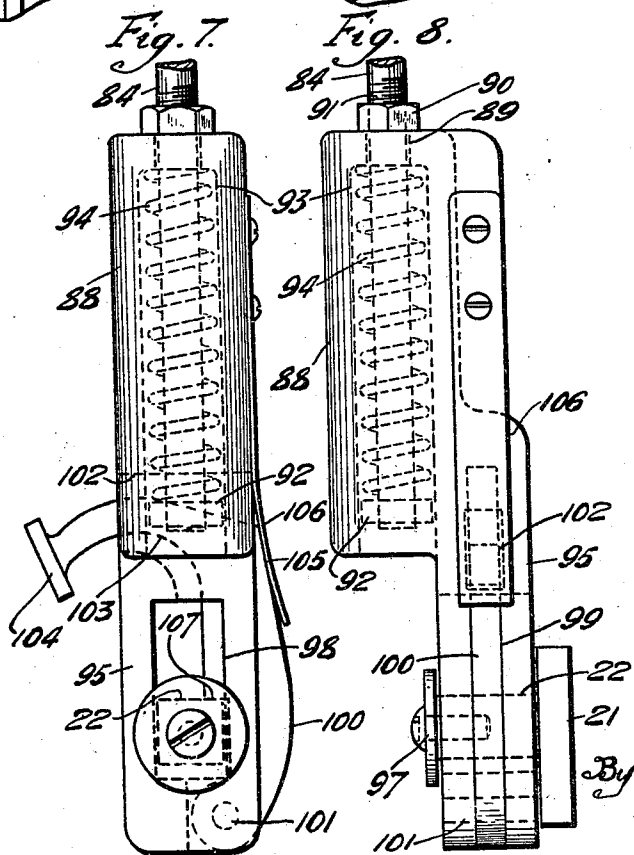
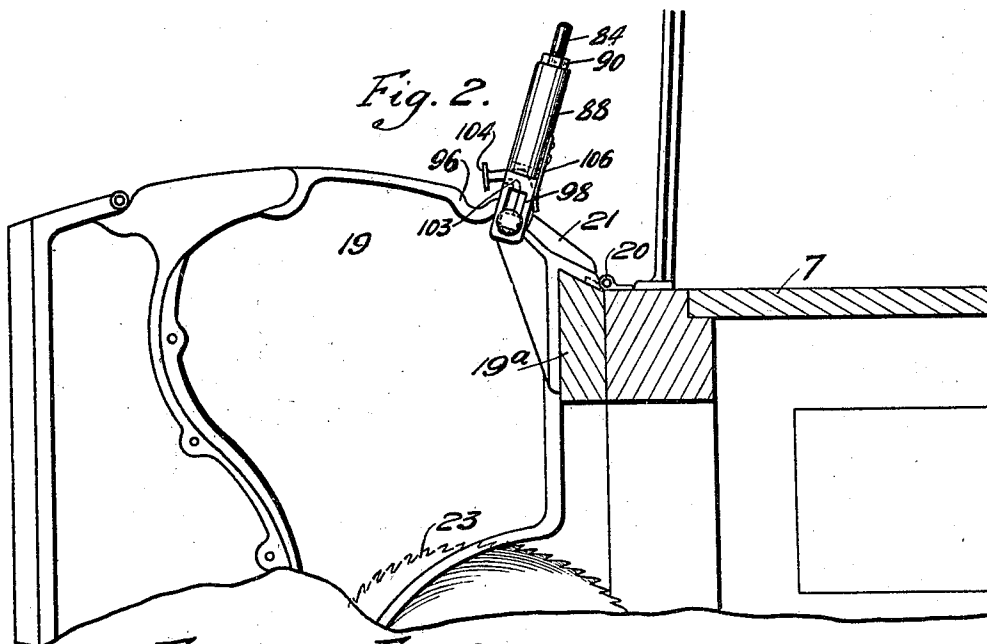
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COTTON GIN FEEDER

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3 Sheets-Sheet 2



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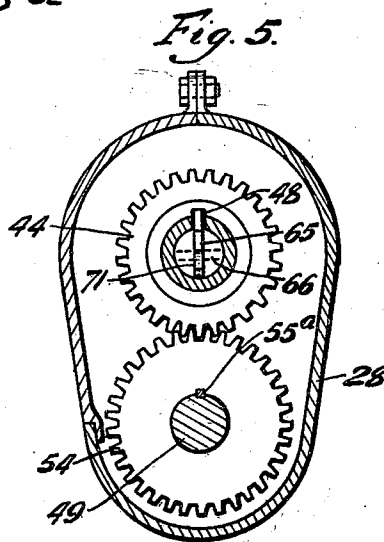
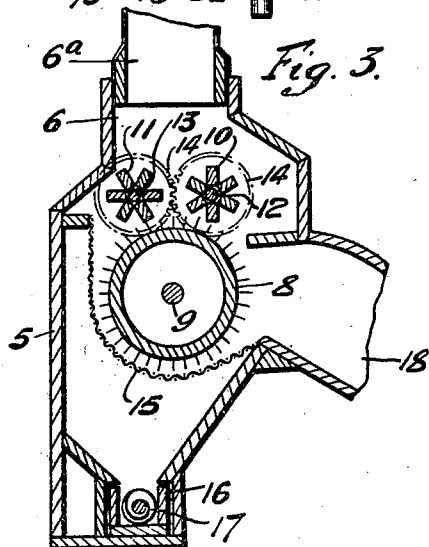
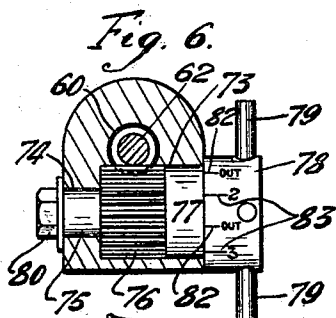
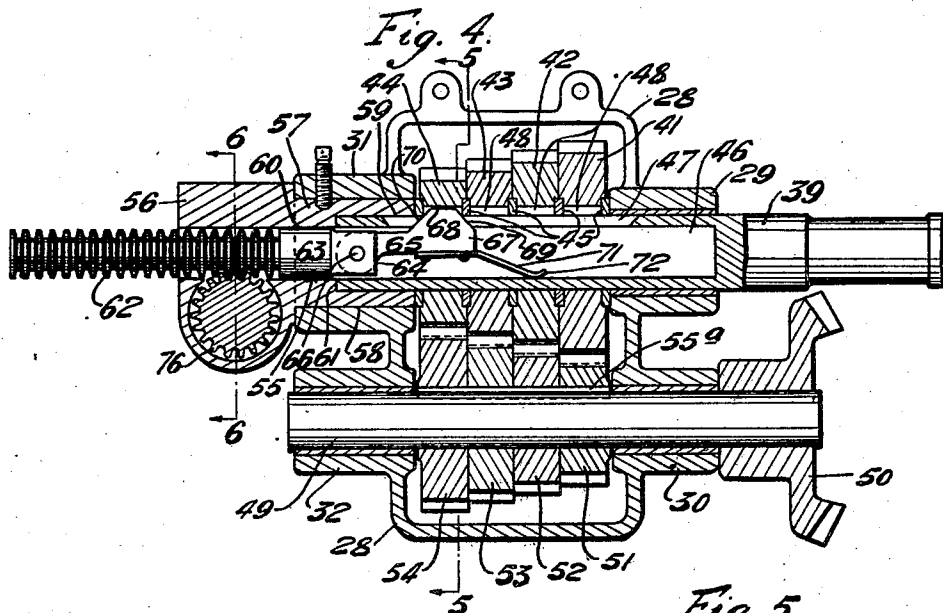
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A. W. MERKEL

COTTON GIN FEEDER

Filed July 10, 1923

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

ARTHUR W. MERKEL, OF ATLANTA, GEORGIA.

COTTON-GIN FEEDER.

Application filed July 10, 1923. Serial No. 650,703.

To all whom it may concern:

Be it known that I, ARTHUR W. MERKEL, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Cotton-Gin Feeders, of which the following is a specification.

This invention relates to cotton gin feeders, and the primary object of the same is to conveniently and positively regulate the amount of cotton passing through the feeder and into the gin breast, and also to provide means as a part of the feeder organization to permit the operator to stop the ginning of cotton in the event of accidents or irregularity of operation, or when a certain quantity of cotton has been ginned, and also to stop the feeding of the cotton whenever the gin breast is raised out of the saws and prevent an accumulation of cotton in the gin breast and avoid choking of the gin. A further object of the invention is to provide a cotton gin feeder wherein a constant speed of the feeding rollers at different rates may be obtained and thereby deliver into the gin breast the same amount of cotton at a predetermined time, and also under certain conditions permit the breast to be raised without interfering with the feed of the cotton. A further object of the invention is to provide a cotton feeding organization embodying interacting gear elements which are so disposed and operate that they cannot slip, and when brought into engaging position will, with surety, be caused to have positive intermeshing actuation in accordance with the adjustment thereof. A still further object of the invention is to generally improve cotton gin feeders having manually adjustable means to regulate the speed of feed as well as cessation and continuation of the feed of the cotton and which when once set in a desirable adjustment will continue to operate with regularity and supply cotton to the gin breast in such quantity as to effect a thorough and reliable ginning operation.

With these and other objects and advantages in view, the invention consists in the construction and arrangement of the several parts which will be more fully hereinafter described and claimed.

In the drawings:

Fig. 1 is a side elevation of a gin feeder and a portion of a gin shown in section and

its breast and illustrating the improved mechanism applied thereto;

Fig. 2 is a side elevation of a portion of a gin partially shown in section together with the gin breast and a part of one of the saws, showing a portion of the improved mechanism attached to the breast;

Fig. 3 is a section through an ordinary gin feeder on a reduced scale, to illustrate the interior thereof and to which the mechanism embodying the features of the invention is applied;

Fig. 4 is an enlarged longitudinal vertical section through the speed gear mechanism of the improvement and particularly showing the sliding key and means for operating the same;

Fig. 5 is a transverse vertical section on the line 5—5, Fig. 4;

Fig. 6 is a transverse vertical section on the line 6—6, Fig. 4; and

Figs. 7 and 8 are detail elevations on an enlarged scale, showing the rod coupling or attaching means for the gin breast and embodying a part of the features of the invention.

The numeral 5 designates the feeder casing having an upper inlet 6 and adapted to be disposed as usual on the top of the gin frame 7 and suitably braced or supported by structural features and accessories commonly employed in gin feeding mountings. The mechanism within the interior of the casing 5 is that usually found in standardized gin feeder organizations and, as shown on a smaller scale by Fig. 3, comprises a picker roller 8 secured on a shaft 9 extending transversely through the casing 5 and disposed below upper feed rollers 10 and 11 respectively mounted on shafts 12 and 13 having intermeshing operating gears 14 for imparting to the said rollers 10 and 11 a proper direction of feed. Below and close to the picker roller 8 is located a concave screen 15, for separating the dust, dirt and other foreign matter from the said cotton upon which the said roller operates. In the lower reduced extremity of the casing 5 is a trough 16 having a rotary conveyor 17 therein and by means of which dust and other foreign matter removed from the cotton by the cleaning mechanism above may be conveyed away from the machine. The cotton is supplied to the feeder through a chute 6^a, which is fitted in the upper inlet

end 6, and extending away from the front side of the casing 5 is a discharge spout 18, which is continued downwardly at an angle above the breast 19, as shown by Fig. 2.

5 The breast, as in ordinary gin structures, is movably mounted and may be raised and lowered relatively to the gin saws. The breast is attached to the rib rail 19^a as usual, and said rail has a bracket 21 hinged to the
10 adjacent portion of the gin frame, as at 20, the bracket having a square pin 22 projecting laterally therefrom. The movement of the breast 19, as will be understood by those skilled in the art, is in relation to the
15 gin saws 23, and by this means the cotton to be ginned is regulated as to its charge relatively to the said saws, and moreover, the cotton may be drawn away from, or brought into engagement with, the saws as
20 conditions of the operation of the gin may require.

On one side of the casing 5 and secured to the shaft 13 of the feed roller 11 is a worm wheel 24, and on the same side the end of
25 the picker roller shaft 9 has a beveled pinion 25 keyed thereto, the opposite end of said picker roll shaft being provided with a drive pulley 26 adapted to receive power from a suitable source. Mounted to swing on the
30 picker roll shaft 9 is a bracket frame 27 of suitable construction and comprising a gear case 28 with shaft-bearing extensions 29, 30, 31 and 32 projecting from opposite ends thereof. The bracket frame 27 also carries
35 at one extremity a bearing device 33, in alinement with the bearing extensions 29 and 31 of the gear case 28. The gear case 28 will be made up of suitable sections, for convenience of mounting the parts or mechanical devices enclosed thereby. The greater
40 weight of the bracket frame is to the left of the end of the shaft 9 and the beveled pinion or gear 25 in view of the gear case 28 and the parts enclosed thereby, and as a consequence, the tendency will be to throw the inner lighter extremity of the bracket frame
45 upwardly towards the worm wheel 24. To limit the upward movement of the inner or right extremity of the bracket frame 27, the latter has a depending extension 35 with a projection 36 in which a set screw 37 is adjustably mounted, the upper end of this screw being positioned to contact with the lower portion of a stop pin 38 extending
50 outwardly from the adjacent side of the casing 5. Rotatably mounted in the bearing device 33 and extending through the bearing extension 29, the upper part of the gear case and into the bearing extension 31 is a
55 worm shaft 39 having thereon a worm 40, which normally meshes with the lower portion of the worm wheel 24. Within the gear case 28 a series of gears 41, 42, 43 and 44 are loosely mounted on the shaft 39 and have
60 their inner portions separated by space

washers 45. The gears or pinions 41, 42, 43 and 44 regularly decrease in dimensions from the gear or pinion 41 to the gear or pinion 44, and the extremity of the shaft 39
70 within the gear case around which the said gears or pinions operate is formed with a bore 46 extending fully through the outer end of the said shaft, and in the upper portion of the shaft is a slot 47. Adjacent to or
75 immediately above the slot 47 the pinions or gears 41, 42, 43 and 44 each have a key groove 48 formed therein and these grooves are closed at their opposite ends by the washers 45, which closely embrace or engage the extremity of the shaft 39 within the
80 gear case and provide partitions between the said gears or pinions for a purpose which will be presently explained. In the lower portion of the gear case 28 a motion transmission shaft 49 is mounted in the bearing
85 extensions 30 and 32 and has on the inner end thereof a beveled gear or pinion 50, which is held in continual mesh with the beveled gear or pinion 25 on the end of the shaft 9. Within the case 28 on the trans-
90 mission shaft 49 are a plurality of gears or pinions 51, 52, 53 and 54, all secured to the shaft by a common key 55^a, the gears 51 to 54, inclusive, respectively meshing with the gears 41 to 44, inclusive, loosely mounted on the hollow or tubular extremity of the shaft
95 39 within the gear case 28. The gear or pinion 51 is the smallest in dimensions of the lower group of gears, and from this innermost gear 51 the remaining gears 52, 53
100 and 54 of the same group gradually increase in dimensions. The picker roller shaft 9 constitutes a driving shaft, the shaft 49 a transmission shaft as above noted, and the worm shaft 39 a driven shaft, and the speed
105 of rotation of the shaft 39 and the worm 40 carried thereby as well as the worm wheel 24 depends upon the gears 41 to 44, inclusive, which are caused to rotate with the shaft 39 and the corresponding gears 51 to 54, in-
110 clusive, on the shaft 49.

Readily operable means are provided for either rotatably connecting the individual gears 41 to 44, inclusive, to the shaft 39 or for disconnecting the said gears from the
115 latter shaft, the same means being under manual control and readily adjustable. The preferred means illustrated consists of a sliding key generally indicated by the reference character 55 and movable longitudi-
120 nally of the bore 46 of the shaft 39. A supplemental gear case 56 is secured to the extension 31 by means of a sleeve 57 forming a part of, or secured to, the said supplemental casing and projecting into the bore 58
125 of the extension 31. The sleeve 57 has a bore extending centrally therethrough with a diametrically enlarged portion 59 opening through the inner end thereof and a smaller diametrical portion 60 opening through the
130

outer portion and continuing through the supplemental case 56. The outer end of the shaft 39 abuts against a shoulder 61 formed at the intersection of the larger and smaller portions of the bores 59 and 60 through the sleeve 57, and the bore 46 of the said shaft 39 aligns with the bore 60, and in these bores the sliding key 55 has movement. This key 55 is formed with an outer cylindrical rack or toothed portion 62 and an inner substantially cylindrical head 63 with a slotted inner extremity 64 in which the outer end of a key dog 65 is movably mounted through the medium of a pivot pin 66 extending transversely through the inner reduced extremity 64 of the said head 63. The key dog as shown by Fig. 5 is flat and freely moves through the slot 47 in the upper portion of the outer tubular extremity of the shaft 39. The key dog 65 has a head 67 with an upper flat edge 68 and inner and outer inclined edges 69 and 70, and by this means the upper portion of the key dog head 67 is reduced, to readily enter between the washers 45 and engage the key grooves 48 of the respective gears 41 to 44, inclusive. The key dog 65 is normally forced upwardly into engaging position relatively to the grooves 48 of the gears 41 to 44, inclusive, by a flat spring 71 secured to the lower edge thereof and having an upturned lower end 72 freely movable on the lower portion of the wall of the bore 46, as clearly shown by Fig. 4. The lower portion of the supplemental gear case 56 is transversely chambered and bored, as at 73 and 74, the upper portion of the chamber 73 opening into the continuation of the bore 60 through the supplemental case and in which the sliding key has operation. In the transverse chamber 73 and bore 74 a short transverse shaft 75 is mounted having a gear enlargement 76 at an intermediate point and a smooth cylindrical continuation 77 of the gear provided with an outer cylindrical turn head 78 having diametrically opposed gripping arms or operating members 79. The gear 76 is held in continued mesh with the cylindrical rack 62 of the sliding key 55 by a nut and washer 80 on the rear end of the shaft 75, as shown by Fig. 6. On the one side of the supplemental gear case 56, as shown by Fig. 1, is a suitable mark or groove 81, and on the head 78 are alternately arranged short and comparatively long marks or grooves 82 and 83, which are adapted to register with the mark or groove 81. The longer marks 83 are numbered in accordance with the positions of the gears 41 to 44, inclusive, so that an operator by turning the head 78 may adjust the key 55 to bring the key dog head 67 into engagement with the gear desired to obtain the speed of rotation that will result from engagement of such gear with the shaft 39 through the medium of the key dog. The

shorter grooves or marks 82 between the longer grooves or marks 83 are provided with words or indications that will inform the operator that the key dog is not engaged with any one of the gears 41 to 44, inclusive, but is bearing against one of the washers 45 between the said gears, the preferred indication for the shorter marks 82 being the word "Out". The operation of the gear 76 through the head 78 either to the right or left may be expeditiously effected and the desirable speed instantly acquired, and it will be understood that the washers 45 are loose on the extremity of the shaft 39 within the gear case 28 and that the gears 41 to 44, inclusive, also have loose rotatable mounting on the said washers. The opposite beveled upper edge portions 69 and 70 of the key dog head 67 obviously facilitate the inward and outward movement of the said key dog head past the washers 45, and when the upper flat edge 68 of the key dog head bears against the inner edge of either one of the washers 45, the gears 41 to 44, inclusive, as a whole will be disconnected from the shaft extremity 39. However, the instant the key dog head 67 passes either one of the washers 45, the spring 71 will act and force the said head outwardly into the groove 48 of the gear desired to be connected to the shaft 39. It will be noted that the bracket frame 27 is disposed at a normal outward and downward angle of inclination relatively to the end of the casing 5 to which it is applied and the degree of such inclination is dependent upon the adjustment of the screw 37, the said screw also being operable to compensate for wear of the worm teeth of the worm 40 and worm wheel 24 and always thereby insure a positive registration of these two gear devices. Owing to the location of the gears 41 to 44, inclusive, and 51 to 54, inclusive, and the gear case 28 with the supplemental gear case 56 and devices carried by the latter, the greater weight will be on the outer extremity of the bracket frame 27, and moreover, when this outer heavier extremity of the bracket frame is elevated a sufficient distance, the worm 40 will be disengaged from the worm wheel 24. The operative coordination of the outer extremity of the bracket frame 27 and the breast of the gin is effected through the medium of a connecting rod 84 having an upper screw threaded end 85 adjustably mounted in a longitudinally slotted coupling head 86 pivotally attached to one side of the extension 32, as at 87. The lower extremity of the connecting rod 84 projects downwardly into a tubular housing 88 and is reciprocable through an opening 89 in the top of the housing, a stop nut 90 engaging the rod and adjustable on the latter through the medium of screw threads 91 formed on said rod immediately above the top of the housing 88 and continuing over

the full length of the lower extremity of the rod, to limit the downward movement of the said rod in accordance with the adjustment found necessary and desirable. On the lower
5 end of the rod 84 within the housing is a nut 92, and between this nut and the upper terminal of the bore 93 of the housing a spring 94 surrounds the rod. The rod 84 is free to move upwardly through the housing
10 against the resistance of the spring 94, and by this means the rod and the bracket frame 27 and particularly the worm 40 is cushioned, and in the event the worm teeth or spiral corrugations of the worm 40 do
15 not at once register with the teeth of the worm wheel 24, the said spring will compress and take the strain off the mechanism until the worm 40 can turn sufficiently to allow its teeth and those of the worm wheel 24 to fully
20 mesh or engage. The housing 88 has a depending bracket extension 95 at one side which is rigidly fixed at its lower extremity to the top rail 96 of the gin breast through the medium of suitable fastening means 97 en-
25 gaging the square pin 22 projecting from the top bracket 21 from which the rail 96 projects. The square pin 22 extends through and is movable in a longitudinal slot 98 in the lower extremity of the bracket extension
30 95, and fulcrumed in a slot 99 of the bracket extension 95 is a releasing lever 100, the lower end of the said lever being pivoted in the slot, as at 101, at the lower end of the bracket extension. The slot 99 continues up-
35 wardly and forwardly in the form of an angular opening 102 above the slot 98, and the lever 100 has an upper crooked extremity 103 movable inwardly and outwardly through the opening 102 and terminating in a flat
40 head 104. The upper portion of the rear edge 105 of the lever 100 is engaged by the lower free extremity of a flat spring 106, the said spring being secured to the upper portion of the housing, as clearly shown by
45 Figs. 7 and 8. Through the medium of the tension of the spring 106 the lever 100 is normally projected outwardly, and at an intermediate point the said lever has a shoulder 107, which normally bears over a portion of
50 the upper edge of the square pin 22 and holds gears 40 and 24 against accidental disengagement. The lever 100 associated with the square pin 22 as just explained also provides means for releasing the breast and per-
55 mitting the latter to be raised without stopping the feed of the cotton, it being only necessary to manually raise the breast without interfering with the feed of the cotton to press against the head 104 of the lever 100
60 and release the shoulder 107 from the upper edge of the square pin 22, and by this operation it will be seen that the rod 84 will remain in normal position or will not be moved. However, when the shoulder 107 remains
65 in engagement with the square pin 22 and the breast is raised, the housing 88 with the extension bracket 95 and rod 84 all move together and the upward movement of the rod raises the outer extremity of the bracket
70 frame 27 together with the mechanical devices carried by said outer extremity of the bracket frame; and the worm 40 being moved in a reverse direction, or downwardly, will cease to operate the worm wheel 24 and the
75 feed rollers 10 and 11 will simultaneously stop and the feed of the cotton by the feed rollers to the picker roller will also cease, and choking of the breast or an overflow feed in relation to the latter will be obviated during the interval that the breast and improved
80 mechanism are simultaneously raised as just explained.

The lever 100 serves as a catch or locking means and is in a convenient position for
85 manual operation when it is desired to raise the breast of the gin without interfering with the continuous feed of the cotton. The shaft 75 with its gear 76 in continual mesh with the rack 62 and having an exteriorly lo-
90 cated head 78 provides an easy means for manual adjustment of the sliding key 55 to regulate the feed of the cotton, and the said head 78 is also located within easy reaching distance of the operator.

From the foregoing the operation of the
95 improved mechanism will be readily understood and a brief general supplemental explanation is believed to be ample.

It is sometimes desirable when first start-
100 ing the gin to allow the cotton to be fed into the gin breast when the latter is raised out of the saws, and to perform this operation, the lever or catch 100 is forced back, to dis-
105 engage the pin 22 without affecting the connecting rod 84 and the mechanism to which this rod is adjustably attached. When the gin breast is lowered, the spring 106 will force the shoulder 107 of the lever or catch
110 100 over the upper edge of the square pin 22, so that when the breast is again raised without releasing the lever or catch 100, the natural cycle of operation of the mechanical
115 feed controlling parts will occur and the feeding of cotton will stop. When the sliding key 55 is operated to move from one of the group of gears 41 to 44, inclusive, to another, the worm 40 and worm wheel 24 are
120 given either an increased or decreased rate of speed of rotation and the amount of cotton which is passed through the feeder and into the gin is correspondingly modified. As
125 hereinbefore indicated, the feeding mechanism may be checked or stopped in its operation by shifting the key 55 to such a distance as to cause the key dog head 67 to bear
130 against either one of the washers 45, or half-way between any one of the gears 41 to 44, inclusive, in view of the fact that when this adjustment is made, the said latter gears will run loose with relation to the hollow extrem-

ity of the shaft 39, and as a consequence, the worm 40 and worm wheel 24 will remain idle or cease to rotate.

The improved mechanism embodying the features of the invention may be readily applied to gins and gin feeders now in use or installed with a comparatively small amount of additional structure, in view of the fact that all of the standardized features of gin feeders remain without reconstruction in the application of the improved regulator or feed controlling mechanism.

What is claimed as new is:

1. In a cotton gin feeder, the combination with a casing having feed rollers and a picker roller therein and a gin with a hinged breast, of a gear mounted on the end of one of the feed roller shafts, a gear on the end of the picker roller shaft, a frame mounted to swing on the shaft of the picker roller and carrying gears respectively meshing with the gear of the feed roller shaft and picker roller shaft, means for modifying the speed of rotation of the gear engaging the gear of the feed roller shaft, and a connection between the outer extremity of the said frame and the breast and operable with the breast to check the operation of the feed rollers and also permitting the breast to be raised without modifying the operation of the feed rollers and picker roller.

2. In a cotton gin feeder, the combination with feed rollers having shafts, a picker roller having a shaft and a gin breast mounted to raise and lower, of gears mounted on the end of one feed roller shaft and also on the end of the picker roller shaft, gear mechanism mounted to oscillate on the picker roller shaft and having gear elements in mesh with the gears of the feed roller shaft and picker roller shaft, gear devices interposed between the gears of the picker roller shaft and feed roller shaft to modify the operation of the feed roller shaft, and a connection between the breast and the said mechanism for changing the operativeness of the latter relatively to the feed roller shaft when the breast is raised and lowered.

3. In a cotton gin feeder, the combination with a casing having feed rollers and picker rollers mounted therein and provided with shafts extending through the casing sides, and a movably mounted gin breast, of gear devices on the end of the picker roller shaft and on the end of one of the feed roller shafts, swinging gear mechanism comprising means for changing the speed of rotation of the feed rollers and including gear devices, one of said gear devices being in continual mesh with the gear devices on the end of the picker roller shaft and the other gear device being separably engaged with the gear device of the feed roller shaft, and connecting means between the said gear mechanism and the breast for controlling the

operation of the feed rollers, the said connecting means including devices operable to permit the gin breast to be raised without disturbing the operation of the feed rollers and the said gear mechanism.

4. In a cotton gin feeder, the combination with feeding mechanism comprising feed rollers and a picker roll, and a movably mounted gin breast, of swinging mechanism concentrically oscillatable with relation to the picker roll and having means for receiving motion from the latter and for transmitting motion to one of the feed rollers and also provided with means for modifying the speed of rotation of the feed rollers, and means between the said mechanism and the breast for effecting an oscillation of the mechanism relatively to the movement of the breast.

5. In a cotton gin feeder, the combination with feeding mechanism and a movably mounted gin breast, of gear mechanism mounted to swing and having operating devices between the picker roll and one of the feed rollers and including speed regulating gears, means for manually adjusting the speed regulating gears, and a connection between the said mechanism and the gin breast to control the operation of the feed rollers relatively to the movement of the breast.

6. In a cotton gin feeder, the combination with feeding mechanism consisting of feed rollers and a picker roller, the shaft of the picker roller and one feed roller having gears thereon, and a movably mounted gin breast, of driving and speed regulating gearing mounted to swing in relation to the picker roller and having gear devices respectively in continual mesh with the gear of the picker roller and in inseparable mesh with the gear of one feed roller, and connecting means between the gear mechanism and the breast and comprising a manually operative catch for releasing the breast relatively to the connecting means to permit independent movement of the breast.

7. In a cotton gin feeder, the combination with feeding mechanism including feed rollers and a picker roller, of gear mechanism mounted to swing about the picker roller as a center and having gear devices operable from the picker roller and for operating the one feed roller, a movably mounted gin breast, and connecting means between the latter and the said gear mechanism for oscillating the latter mechanism in consonance with the raising and lowering of the breast to alternately release the one feed roller from and effect engagement of the said roller with the gear mechanism.

8. In a cotton gin feeder, the combination with feeding mechanism including feed rollers and a picker roller, and a movably mounted gin breast, of gear mechanism mounted to swing about the picker roller

as a center and having gear devices respectively operable from the picker roller and for operating the one feed roller, and connecting means between the gin breast and the outer portion of the said gear mechanism for oscillating the latter in consonance with the raising and lowering of the breast to alternately release the one feed roller from and effect engagement of the said roller with the gear mechanism, the connecting means having a releasable catch to permit the gin breast to move independently of the said connecting means.

9. In a cotton gin feeder, the combination with feeding mechanism including feed rollers and a picker roller, and a movably mounted gin breast, of gear mechanism mounted to swing about the picker roller as a center with the greatest portion of the weight thereof outwardly beyond the said picker roller, the gear mechanism having gear devices respectively operable from the picker roller and for operating the one feed roller, and connecting means between the movably mounted gin breast and the outer portion of the gear mechanism for oscillating the latter in consonance with the raising and lowering of the breast to alternately release the one feed roller from and effect engagement of the said roller with the gear mechanism, the connecting means including a resilient device for cushioning and producing positive engagement of the one gear device with relation to the one feed roller.

10. In a cotton gin feeder, the combination with feeding mechanism including feed rollers and a picker roller, of a movably mounted gin breast having projecting devices, gear mechanism mounted to swing about the picker roller as a center and having gear devices respectively operable from the picker roller and for operating the one feed roller, the said gear mechanism also having loosely mounted gear devices and a manually operable key to throw into operation any one of said gear devices and also to effect inactivity of these gear devices, and connecting means between the movably mounted gin breast and the outer portion of the gear mechanism for oscillating the latter in consonance with the raising and lowering of the breast to alternately release the one feed roller and effect engagement of said roller with the gear mechanism, the

lower portion of the connecting means being slotted to movably receive the said projection of the gin breast and also having means for releasably locking the gin breast thereto.

11. In a cotton gin feeder, the combination with feeding mechanism including feed rollers and a picker roller, of a movably mounted gin breast having a projection, gear mechanism mounted to swing in relation to the picker roller and having gear devices respectively operable from the picker roller and for operating the one feed roller, and connecting means between the gin breast and the said gear mechanism for oscillating the latter mechanism in consonance with the raising and lowering of the breast, the connecting means having a lower slotted portion to receive the said projection from the gin breast and a manually operative catch normally engaging said projection and operably to release the gin breast for independent movement of the latter.

12. In a cotton gin feeder, the combination with feeding mechanism including feed rollers and a picker roller, one of the feed rollers carrying a gear at one extremity thereof and the picker roller also having a gear at one end of the same, of gear mechanism mounted to swing relatively to the picker roller as a center and having gear devices for transmitting motion from the picker roller and a driven shaft with loose gear devices of different dimensions for engagement with the gear device for transmitting motion from the picker roller, the driven shaft having a gear at its inner extremity in separable mesh with the gear of the one feed roller, and a manually operative slide key to connect any one of the loosely mounted gears with the driven shaft to modify the rate of speed of the latter, and connecting means between the outer portion of the said gear mechanism and the movably mounted gin breast for oscillating the said mechanism in consonance with the raising and lowering of the breast to alternately release the one feed roller from and effect engagement of the said roller with the gear device at the inner extremity of the driven shaft.

In testimony whereof I have hereunto set my hand.

ARTHUR W. MERKEL.