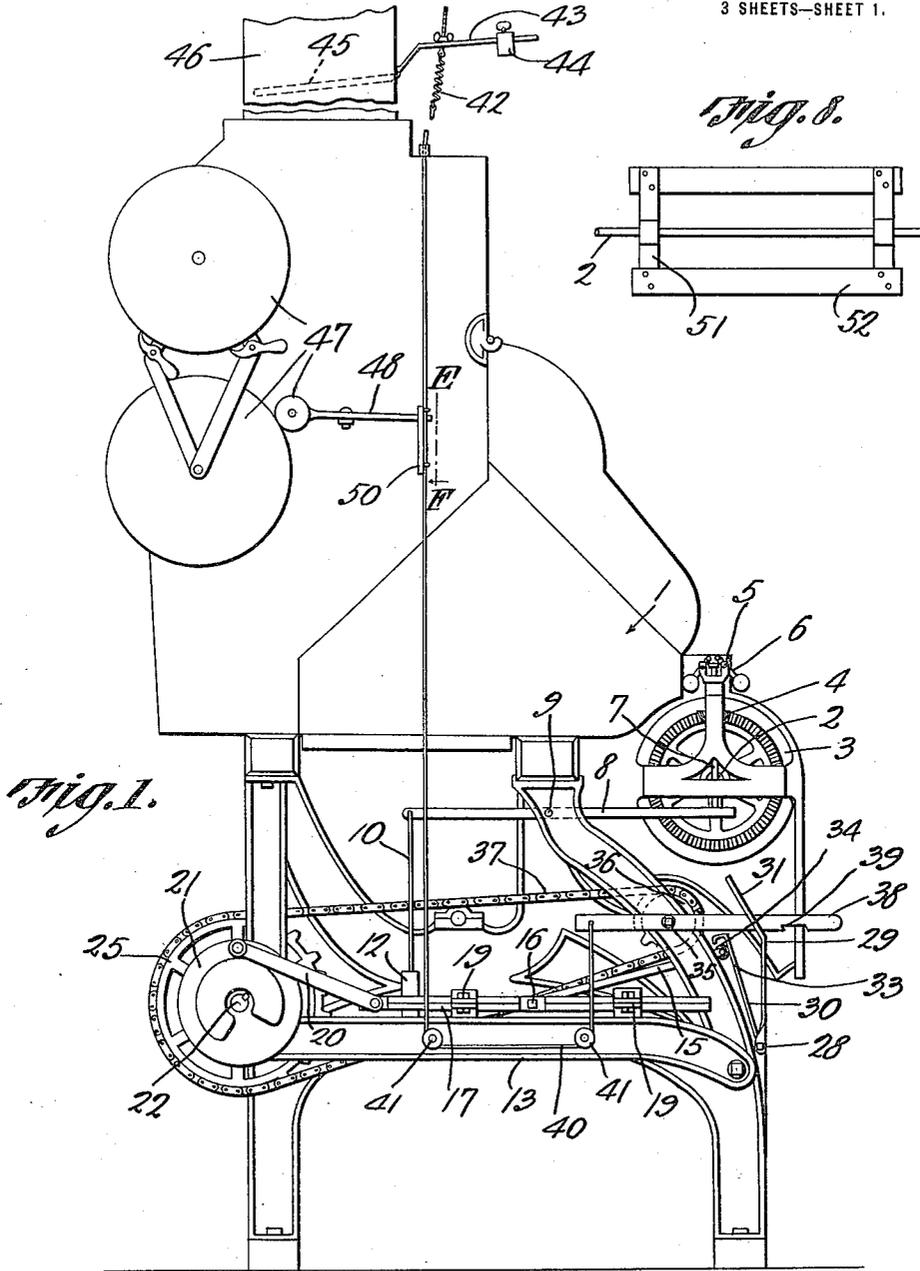


M. E. MURPHY.
COTTON GIN.
APPLICATION FILED JULY 26, 1915.

1,163,946.

Patented Dec. 14, 1915.
3 SHEETS—SHEET 1.



Witnesses

J. P. Dyer
R. L. Parker

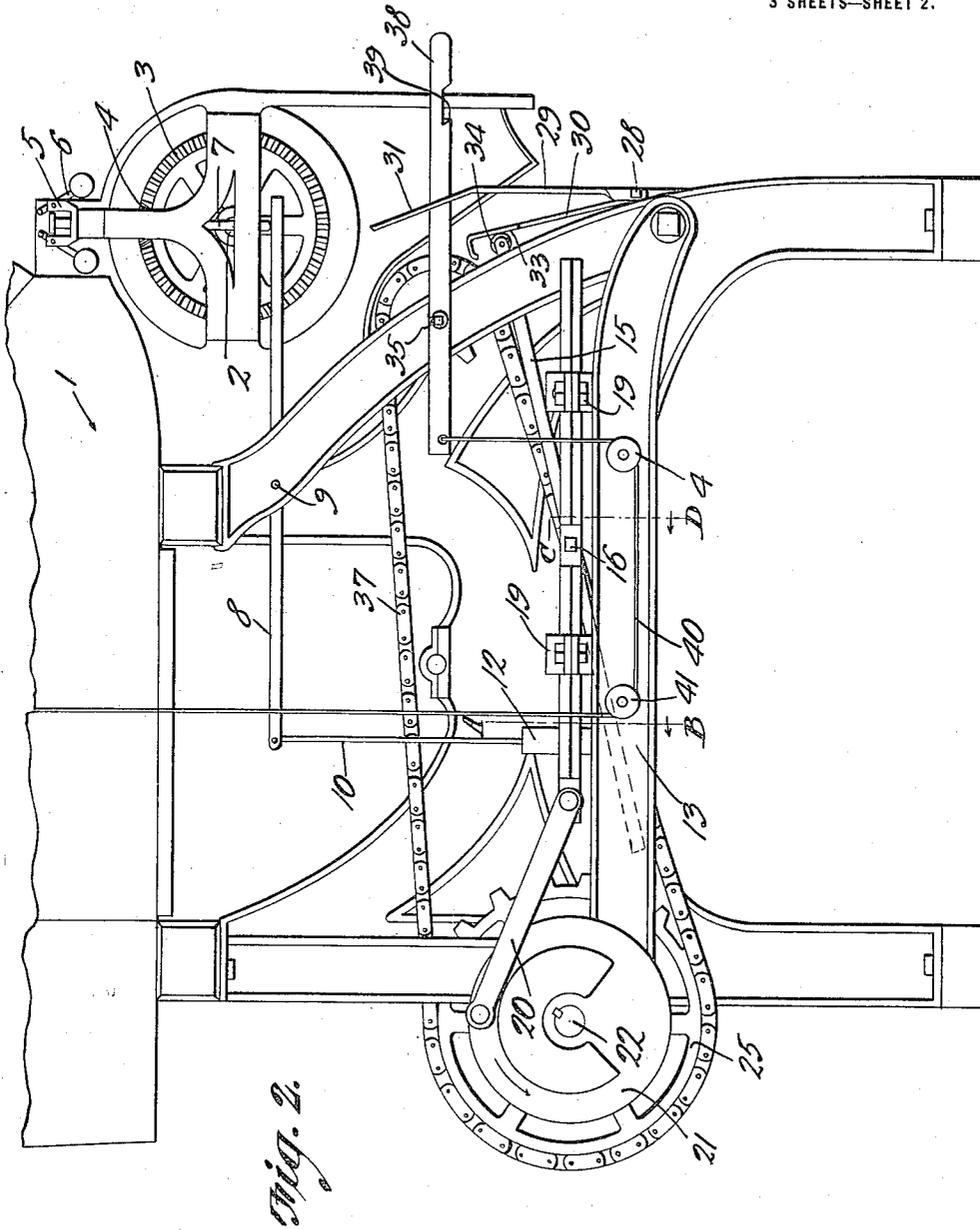
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3 SHEETS—SHEET 2.



Witnesses

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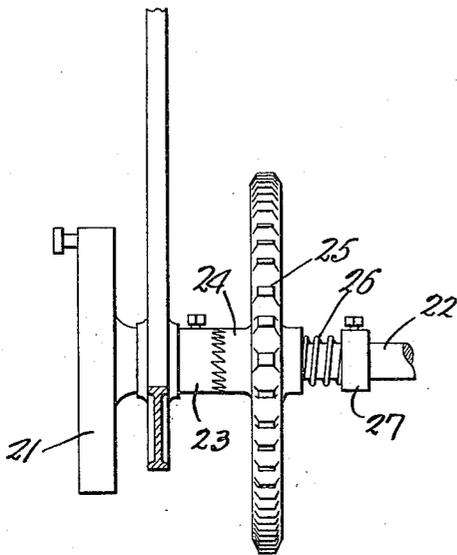


Fig. 3.

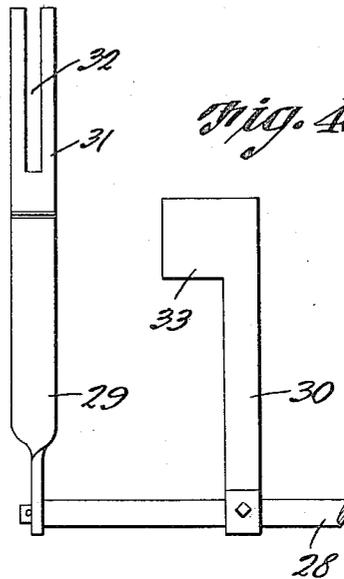


Fig. 4.

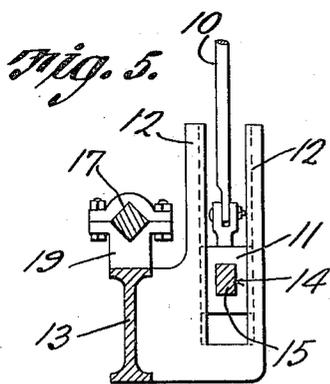


Fig. 5.

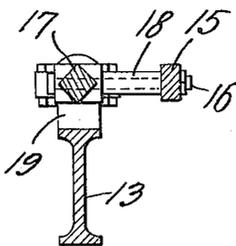


Fig. 6.

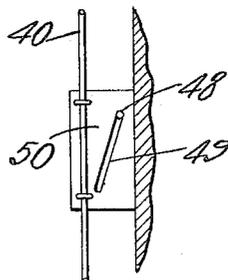


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

MOSES ELLIS MURPHY, OF TALMO, GEORGIA.

COTTON-GIN.

1,163,946.

Specification of Letters Patent.

Patented Dec. 14, 1915.

Application filed July 26, 1915. Serial No. 41,995.

To all whom it may concern:

Be it known that I, MOSES ELLIS MURPHY, a citizen of the United States, residing at Talmo, in the county of Jackson and State of Georgia, have invented a new and useful Cotton-Gin, of which the following is a specification.

This invention relates to cotton gins and more particularly to mechanism for use in connection therewith whereby should the roll of the gin cease to operate, the breast of the gin will be pounded until the roll begins to operate, this operation taking place automatically.

A further object is to provide means which operates automatically to hold the breast of the gin in open position should the gin feeder run out of its cotton supply, said mechanism operating to promptly close the breast of the gin as soon as cotton is again supplied to the feeder, thus restarting the gin.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings: Figure 1 is a side elevation of a gin having the present improvements combined therewith. Fig. 2 is an enlarged side elevation of a portion of the gin and the mechanism carried thereby. Fig. 3 is a front elevation of the pitman actuating disk and the clutch and sprocket cooperating therewith. Fig. 4 is a front elevation of a portion of the rod used on many types of gins for lifting the breast thereof, and showing the levers upstanding therefrom. Fig. 5 is a section on line A—B Fig. 2. Fig. 6 is a section on line C—D Fig. 2. Fig. 7 is a section on line E—F Fig. 1. Fig. 8 is a detail view of the roll shaft and the boards thereon utilized to prevent cotton from spinning around the shaft and not turning the shaft.

Referring to the figures by characters of reference 1 designates a gin structure of any preferred make, the shaft of the roll

of the gin being indicated at 2 and being provided with a large gear 3 adapted to mesh with a gear 4 constituting means for rotating a centrifugal governor 5. The weighted arms 6 of the governor overhang a rod 7 which is mounted to slide vertically and which bears at its lower end upon one end of a lever 8 fulcrumed as at 9 upon the gin structure. The other end of this lever 8 is connected by a rod 10 to a cross head 11 mounted to slide upon and between vertical guides 12 secured to one side beam 13 of the gin structure. This cross head has an opening 14 in which is loosely mounted a push rod 15. This push rod is mounted on a pivot bolt 16 extending laterally from a slide 17 there being, preferably, a spacing sleeve 18 on the bolt and between the slide and the rod 15 as shown particularly in Fig. 6. Slide 17 can be of any desired transverse contour and is mounted within suitable guides 19 mounted on the beam 13.

A pitman 20 connects slide 17 to a disk 21 which is secured to and rotates with a shaft 22. This shaft has a clutch member 23 secured to it and cooperating with another clutch member 24 extending from the hub of a sprocket 25 which is loosely mounted on shaft 22. A spring 26 is interposed between the sprocket and a collar 27 on shaft 22 and serves to hold the two clutch members 23 and 24 normally in engagement with each other.

The rod usually employed for the purpose of raising the breast of a gin has been indicated at 28 and has two levers 29 and 30 upstanding therefrom. The lever 29 is provided with an inclined upper end portion 31 in which is formed a longitudinal slot 32 while the lever 30 is provided at its upper end with a laterally extending wing or abutment 33. The push rod 15 is preferably provided with a roller 34 at its upper or forward end and lever 30 is so positioned and proportioned that when the cross head 11 is in its lowermost position and the rod 7 is raised, the roller 34 will be positioned to push against the wing or abutment 33 and thus swing lever 30 and rotate rod 28, thereby to raise the breast of the gin.

The saw shaft, which has been indicated at 35, has a sprocket 36 on which is mounted an endless chain 37 engaging the sprocket 25. Pivottally mounted on one end of shaft 35 is a locking lever 38 which extends through the slot 32 and has a notch 39 in

the lower edge thereof. One end of this lever 38 is connected to a cord, chain or the like indicated at 40 and which extends under guide sheaves 41 and upwardly to a spring 42 adjustably connected to a lever 43. This lever has a weight 44 adjustably mounted thereon and extends from a hinged mounted board 45 arranged within the feed pipe 46 of the feeder.

A portion of the mechanism of the cotton feeder has been indicated at 47 and this mechanism is adapted to be thrown into and out of gear by a lever 48 extending into a diagonal slot 49 formed in a slide 50 which is connected to cord or chain 40. Thus when the block 50 is moved upwardly the lever 48 will be shifted laterally in one direction and when it is moved downwardly the said lever will be shifted laterally in the opposite direction.

Assuming that the gin is in full operation, motion will be transmitted through the gears 3 and 4 to the centrifugal governor so that the balls of the governor will hold arms 6 raised, thus pressing the rod 7 downwardly against lever 8 so as to hold the cross head 11 in raised position. Consequently the reciprocation of the slide 17 due to the rotation of disk 21 under the action of sprocket 25 and chain 37 will result in the roller 34 moving below and past the lateral wing or abutment 33 so that this reciprocation of the parts will not result in the actuation of lever 30 and the rod 28. However, should the roll and its shaft 2 cease to rotate, the governor will immediately remove its pressure from rod 7 with the result that the cross head 11 will gravitate and cause push rod 15 to swing upwardly at its forward end, thus bringing the roller 34 where it will strike against the abutment 33 during the forward movement of slide 17. Consequently the lever 30 will be swung forwardly, thus rotating rod 28 and causing the breast to be pounded. As soon as the roll and its shaft 2 begin to rotate, the rod 7 will move downwardly, thus raising the cross head 11 and causing the roller 34 to drop below the abutment or wing 33. Consequently the pounding action referred to will cease.

It will be obvious that as long as cotton is being fed to the feeder of the gin, the weighted lever 43 will be held elevated with the result that the cord or flexible connection 40 will pull upon lever 38 thus holding the notched portion of the lever elevated so that oscillation of lever 29 can take place without interference. However, should the feeding of cotton to the apparatus stop, the board 45 will move upwardly under the action of the weighted lever 43 with the result that the forward or notched end of lever 38 will move downwardly so that as soon as the cotton in the gin runs low, the roll will stop, thus causing the governor to stop

or diminish its speed and bringing the push rod 15 into action. Consequently when the lever 30 is pushed forwardly by the push rod and the rod 28 is rotated so as to raise the breast of the gin, lever 29 will be swung forwardly, thus bringing the lower or end wall of slot 32 into the notch 39. Consequently the parts will be locked with the gin breast in open or raised position. This actuation of lever 38 will result in the slide 50 being shifted so as to throw the gearing 47 out of action. As soon as the feeder is again filled with cotton, the board 45 will be depressed and the cord or connection 40 will pull on lever 38 so as to disengage it from lever 29. Consequently the breast of the gin will be moved to closed position and the rotation of the roll and its shaft 2 will result in the depression of the front end of lever 8 and the consequent shifting of roller 34 to its lowered position.

It will be seen that the entire operation of the mechanism herein described is automatic.

As shown in Fig. 8 the shaft 2 is preferably provided with radial arms 51 to which are secured parallel boards 52. These boards prevent the cotton from passing around the shaft without turning it.

What is claimed is:—

1. In a cotton gin, the combination with a breast lifting rod, of a pivotally mounted push rod, means for continuously reciprocating the push rod during the operation of the gin saws, means operated by the rotation of the gin roll for holding the push rod out of normal position, during the reciprocation thereof, and means operated by the reciprocation of the push rod when in its normal position, for actuating the breast lifting rod.

2. The combination with a cotton gin and a breast lifting rod, of a pivotally mounted push rod, means for continuously reciprocating the push rod during the operation of the gin saws, means connected to said lifting rod and normally in the path of the push rod for receiving motion from said push rod to raise the gin breast, and means operated by the rotation of the gin roll, for shifting the push rod out of normal position and out of active relation with the lifting rod.

3. In a cotton gin, the combination with a breast lifting rod, a roll shaft and a saw shaft, of a pivotally mounted push rod, means operated by the saw shaft for reciprocating the push rod, a governor, means for transmitting motion to the governor from the roll shaft, means operated by the governor during the rotation of the roll shaft for holding the push rod out of normal position during its reciprocation, and means upon the breast lifting shaft for actuation by the push rod when in its normal position to rotate said lifting rod.

4. In a cotton gin, the combination with a

breast lifting rod, a roll shaft and a saw shaft, of a pivotally mounted push rod, means operated by the saw shaft for reciprocating the push rod, a governor, means for transmitting motion to the governor from the roll shaft, means operated by the governor during the rotation of the roll shaft for holding the push rod out of normal position during its reciprocation, means upon the breast lifting shaft for actuation by the push rod when in its normal position to rotate said lifting rod, a pivotally mounted locking member, means upon the lifting rod and normally engaged by said member for holding the breast of the gin in raised position, a feeder, and means controlled by cotton supplied to the feeder for holding the locking member out of active position.

5. In a cotton gin, a breast lifting rod, a saw shaft, a roll shaft, a push rod pivotally mounted, means operated by the saw shaft for reciprocating the push rod, a centrifugal governor, means for transmitting motion thereto from the roll shaft, means operated by the governor for swinging the push rod out of its normal position during the reciprocation thereof, means upon the lifting rod for engagement by the push rod when in its normal position, thereby to transmit motion from the push rod to the lifting rod.

6. In a cotton gin, a breast lifting rod, a saw shaft, a roll shaft, a push rod pivotally mounted, means operated by the saw shaft for reciprocating the push rod, a centrifugal governor, means for transmitting motion thereto from the roll shaft, means operated by the governor for swinging the push rod out of its normal position during the reciprocation thereof, means upon the lifting rod for engagement by the push rod when in its normal position, thereby to transmit motion from the push rod to the lifting rod, a locking lever, means operated by pressure of cotton supplied to the gin for holding said lever out of normal position, and means for engagement by said lever when the lift-

ing rod is shifted out of normal position, for holding said lifting rod against movement.

7. In a cotton gin, the combination with a breast lifting rod and a lever extending from said rod and movable therewith, of a roll shaft, a constantly reciprocating element, and means operated by the roll shaft for maintaining said element out of the path of the lever on the lifting rod.

8. In a cotton gin, the combination with a breast lifting rod and a lever extending from said rod and movable therewith, of a roll shaft, a constantly reciprocating element, means operated by the roll shaft for maintaining said element out of the path of the lever on the lifting rod, means for automatically locking the lifting rod against return movement upon the lifting of the gin breast, and means operated by the pressure of cotton supplied to the gin for releasing the lifting rod to close the gin breast.

9. In a cotton gin, the combination with a breast lifting rod, a roll shaft, and feeding mechanism, of a constantly reciprocating element, a lever extending from and movable with the lifting rod, means operated by the roll shaft for maintaining said element out of the path of the lever on the lifting rod, said element being shiftable automatically into position to engage and thrust against the lever upon the stoppage of the roll shaft, a locking lever, means upon the lifting rod for engagement by the locking lever to hold said rod against movement while the gin breast is open, means operated by the pressure of cotton supplied to the gin for shifting said lever to release the lifting rod, and means for automatically stopping the feed mechanism when the lifting rod is locked against movement.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MOSES ELLIS MURPHY.

Witnesses:

F. K. MCGEE,
JULIEN E. STEWART.