

H. REMBERT.

STOP ATTACHMENT FOR COTTON GINS.

No. 586,394.

Patented July 13, 1897.

Fig. 4.

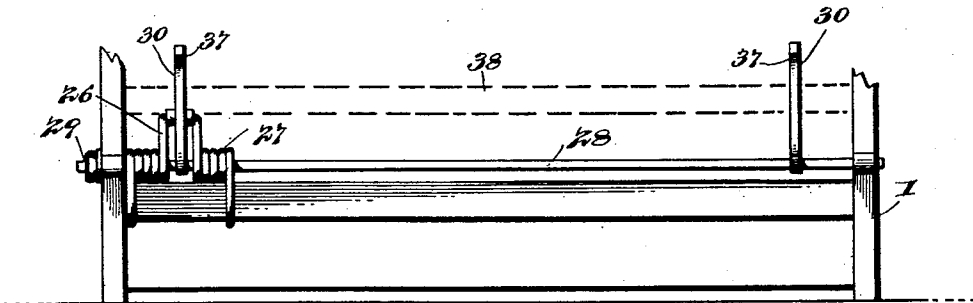


Fig. 5.

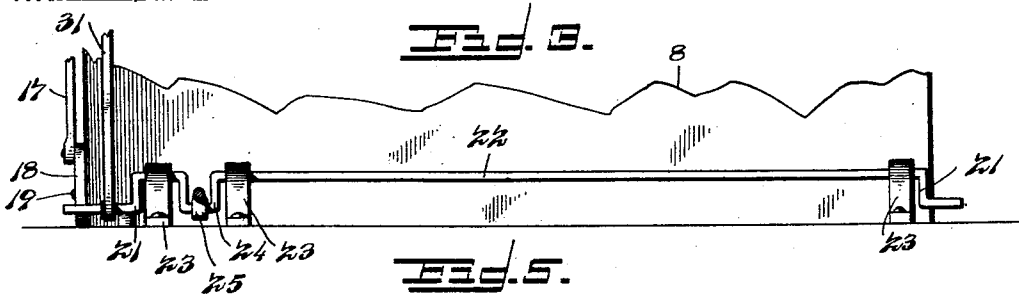
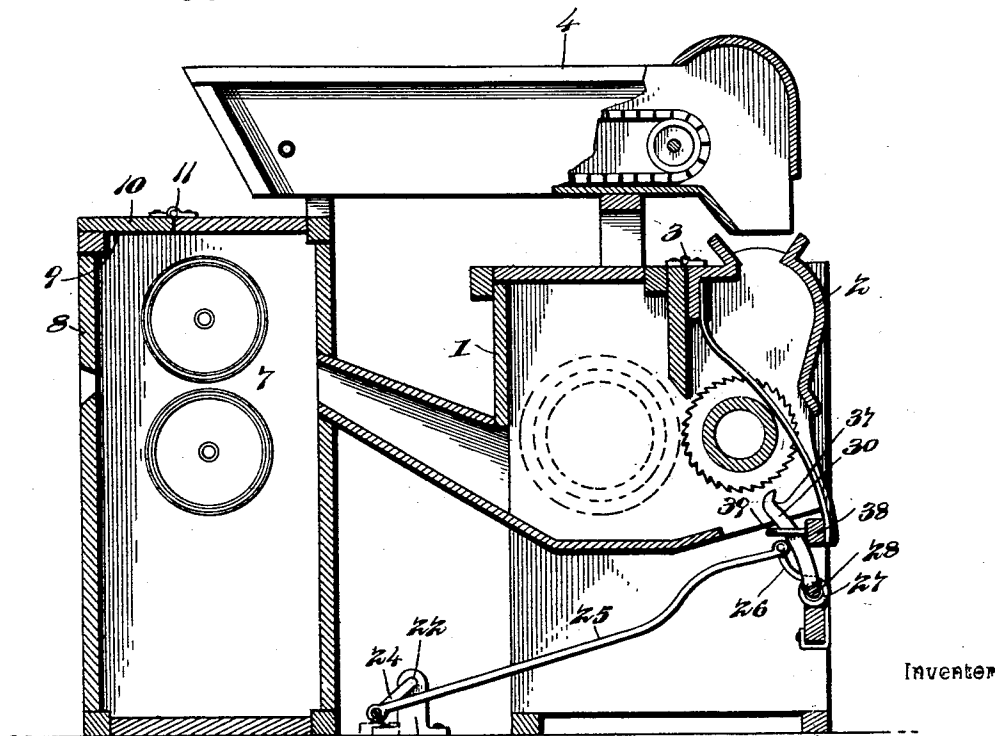


Fig. 5.



Witnesses

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STOP ATTACHMENT FOR COTTON-GINS.

SPECIFICATION forming part of Letters Patent No. 586,394, dated July 13, 1897.

Application filed October 13, 1896. Serial No. 608,746. (No model.)

To all whom it may concern:

Be it known that I, HENRY REMBERT, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented a new and useful Stop Attachment for Cotton Ginning and Condensing Apparatus, of which the following is a specification.

This invention relates to automatic stop attachments for cotton ginning and condensing apparatus; and it has for its objects to provide a new and useful attachment of this character operated in connection with a gin-condenser and gin-feeder to provide positive means for automatically stopping the ginning operation and the feed of cotton in the event of the condenser becoming choked, which choking often wrecks the gin-brush, ruins the saws, and creates fire by friction.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of a cotton-gin condenser and gin-feeder equipped with the stop attachment contemplated by the present invention, showing the several parts of the said attachment in their normal positions. Fig. 2 is a similar view showing the parts of the attachment in the position they assume to raise or elevate the gin-breast and stop the ginning operation until the condenser is relieved. Fig. 3 is a sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail front view of a portion of the gin, showing in full lines the breast-adjusting stop-shaft of the attachment. Fig. 5 is a vertical longitudinal sectional view of the ginning and condensing apparatus, showing parts of the attachment set. Fig. 6 is a detail sectional view showing the position of the adjusting-arms when the same are caused to engage with the lower rail of the gin-breast by the action of wet cotton choking the ribs.

Referring to the accompanying drawings, the numeral 1 designates an ordinary cotton-gin provided at its front side with the usual breast 2, which is hinged at its upper edge, as at 3, to the casing of the gin in the ordinary

manner, so that it can be readily raised and lowered. Directly over the gin 1 and delivering into the breast thereof is the ordinary gin-feeder 4, which subserves its usual function of evenly distributing the seed-cotton into the roll box or breast of the gin, and the working parts of the feeder 4 are operated by the feeder drive-belt 5 in the usual manner, which feeder drive-belt when not tightened is too loose to communicate motion to the feeder mechanism, as is well understood by those skilled in the art.

The gin 1 is provided at its rear side with the usual discharge-flue, through which the lint is forced by the action of the gin-brush, and said flue delivers the lint-cotton into one side of the ordinary cotton-condenser 7, which compresses the lint-cotton into a bat in the usual way. In the present invention the casing 8 of the condenser is provided in the top thereof with a longitudinal valve-opening 9, which is normally tightly closed by the valve-door 10, working thereover and hinged at one edge, as at 11, to the top of the condenser-casing 8 at one edge of the opening 9 therein.

The valve-door 10 completes the top portion of the condenser-casing when it is closed and is preferably provided in its upper side near one end with a series of notches 12, adapted to be adjustably engaged by the pawl-arm 13, pivotally connected at one end to a swinging weight-arm 14. The swinging weight-arm 14 is pivoted at its lower end, as at 15, to one side of the condenser-casing 8 and carries at its upper end a weight 16, which, when the arm 14 is moved at one side of the vertical plane of its pivot, holds the pawl-arm 13 in engagement with one of the notches 12 and is sufficiently heavy to weight the valve-door 10 down and prevent the same from opening except when the condenser becomes choked and there is no other egress for the air except through the opening 8. By adjusting the point of the pawl-arm in the notches 12 the weight or pressure on the valve-door may be graduated, so that such door will open without fail when the pressure of air within the condenser becomes excessive. The swinging weight-arm 14 also has pivotally connected thereto between its ends the upper end of a connecting-rod 17, the

lower end of which rod is pivotally connected to one end of a trip-lever 18, pivoted intermediate of its ends, as at 19, on one side of the condenser-casing and provided at its end opposite the connection with the rod 17 with a shouldered tip 20, adapted to normally engage under the terminal crank 21 at one end of the transverse trip-shaft 22. The transverse trip-shaft 22 is provided at both ends with the terminal cranks 21, so that a proper connection with the gin-feeder may be made with one of the said cranks, as will be more particularly referred to, and said transverse trip-shaft 22 is mounted for oscillation in the bearing-boxes 23, arranged on the floor between the gin 1 and the condenser 7. The oscillatory trip-shaft 22 is provided adjacent to one end with an intermediate crank or crank-bend 24, to which is connected one end of the pitman 25, the other end of which is pivotally connected to the central upwardly-disposed loop 26 of a coiled spring 27, the opposite portions of which are loosely coiled on a transverse stop-shaft 28, journaled in suitable bearings at the front side of the gin-casing near the lower edge or rail of the hinged breast of the gin.

The transverse stop-shaft 28 is provided at one end outside of the gin with a hand or setting lever 29, and intermediate of its ends with upwardly-disposed adjusting-arms 30, which are designed to work at the lower swinging edge of the gin against the rail of the hinged gin-breast 2 to provide for moving such edge of the breast outwardly and thereby raising the breast off of the saws at the proper time. One of the upwardly-disposed adjusting-arms 30 of the stop-shaft 28 is disposed directly at one side of the loop 26 of the spring to provide for setting the parts of the attachment and at the same time allowing the said spring to sharply oscillate the shaft 28 in one direction to provide for the elevation of the gin-breast in the manner referred to.

One of the terminal cranks 21 of the trip-shaft 22 has pivotally connected thereto one end of an adjusting-bar 31, the opposite end of which bar has a slotted connection 32 with one arm of a bell-crank lever 33, pivotally mounted at its angle, as at 34^a, on one side of the apparatus adjacent to the feeder drive-belt 5. The arm of the bell-crank lever 33, opposite its connection with the bar 31, carries an idle tightener-pulley 34, which normally bears against one side of the feeder drive-belt 5 and tightens the same sufficiently to provide for the operation of the feeder mechanism, while the gin and condenser are in proper running order. Either of the terminal cranks 21 is used, according to the side of the gin-feeder at which the feeder drive-belt is located.

When the parts of the attachment are adjusted in their normal positions, the intermediate crank 24 of the trip-shaft is disposed be-

low its center or shaft 22 and becomes locked in this position by reason of the pulling action of the spring 27, arranged on the stop-shaft, and in the position noted the crank 24 holds the spring 27 tightened. When the condenser become choked with the cotton, the current of air from the gin-brush is obstructed and confined within the gin-flue and condenser, and the pressure of the air increases until it is sufficiently strong to blow open the valve-door 10 and relieve the gin and condenser. When the air opens the valve-door 10, the weight-arm 14 is thrown at one side of the vertical plane of its pivot, and in this movement the weight 16 is sufficiently heavy to forcibly oscillate the trip-lever 18 on its axis. When the trip-lever 18 oscillates in this manner, the shouldered tip end thereof engages under the adjacent terminal crank 21 and oscillates the shaft 22, so as to raise the crank 24 above the plane of the shaft. This movement of the crank 24 releases the spring 27, so that the loop 26 thereof sharply and forcibly presses against the adjacent adjusting-arm 30, so as to move the stop-shaft 28 in a direction to force the arms 30 thereof against the lower swinging edge of the breast, thereby elevating the breast and stopping the ginning operation immediately. Simultaneously with the automatic elevation of the gin-breast in the manner described the movement of the trip-shaft 22 adjusts the bar 31 in a direction to throw the idle-pulley 34 off of the drive-belt 5, so as to stop the feeding mechanism and prevent the cotton from feeding while the gin-breast is raised.

To set the various parts of the attachment, the pawl-arm 13 is engaged with the notches of the valve-door in the manner described, and by then moving the lever 29 in one direction the spring 27 is tightened, and at the same time, through the pitman connection 25, provides for oscillating the trip-shaft 22 until the crank 24 drops to its lower locked position.

It will be obvious that the position of the valve-door 10 might be changed to the flue 6 or other point in the line of communication between the gin and condenser without in any way affecting the construction and operation of parts already described.

As a supplementary feature of the stop mechanism described the upwardly-disposed adjusting-arms 30 of the stop-shaft are formed in their upper ends with catch-notches 37, adapted to engage with the lower rail 38 of the gin-breast 2 when the same becomes elevated to the position illustrated in Figs 2 and 6 of the drawings. In the operation of the stop mechanism proper the tension of the spring 27 is sufficiently strong to elevate the gin-breast above the saws to hold the same in such elevated position to stop the ginning operation in the manner hereinbefore described; but the notches 37 are especially designed for use in holding the gin-breast ele-

vated when the same is automatically raised by the ribs of the breast becoming choked with wet cotton. It is well understood that in ginning wet cotton the ribs often choke up and the gin-breast is thrown up by the rotating saws, and when this occurs the notches 37 fall into engagement with the lower rail of the gin-breast and hold the breast in its elevated position until the choking is relieved. To insure the engagement of the notched ends 37 of the arms 30 with the lower rail of the gin-breast, the latter has fitted in the inner side thereof keeper-staples 39, which loosely embrace or receive therein the arms 30, so that as the breast is raised the said keeper-staples will move the arms 30 outward until their notches engage with the breast-rail in the manner explained, and as clearly illustrated in Fig. 6 of the drawings, it being understood that in this operation of the breast the parts of the stop mechanism, including the position of the spring-loop 26, are not disturbed. After the choking of the ribs is relieved the notched ends 37 of the adjusting-arms are disengaged from the breast-rail and the parts thrown back to a normal position by the setting-lever 29.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described stop mechanism will be readily apparent to those skilled in the art without further description, and it will be further understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a stop attachment of the class described, the combination with a gin having a hinged breast, the gin-flue, and an adjacent condenser communicating with the gin-flue; of a movable relief-valve arranged in the line of communication between the gin and the condenser, and mechanism for raising the gin-breast by the opening of said movable relief-valve, substantially as set forth.

2. In a stop attachment of the class described, the combination with a gin having a hinged breast, the gin-flue, and an adjacent condenser communicating with the gin-flue; of a movable relief-valve arranged at a point in the line of communication with the interior of the condenser and the gin-flue, trip mechanism for automatically raising the gin-breast, and a releasing device for said trip mechanism having a connection with said movable relief-valve, substantially as set forth.

3. In a stop attachment of the class described, the combination with a gin having a breast hinged at its upper edge, and the gin-feeder having a drive-belt; of breast-controlling mechanism having an engagement with

the lower edge of the breast to provide for positively swinging the latter upward on its hinge, means for holding said mechanism normally inactive, a movably-supported tightener-pulley normally bearing against the drive-belt, an operating connection between the breast-controlling mechanism and said tightener-pulley, and means for automatically causing said controlling mechanism to move in a direction to provide for automatically raising the gin-breast and simultaneously moving the tightener-pulley away from said belt, substantially as set forth.

4. In a stop attachment of the class described, the combination of a gin having a hinged breast, and an adjacent condenser provided in its top with a valve-opening, of a hinged valve-door working over said valve-opening and provided at one end with a series of notches, a transverse stop-shaft journaled at the front side of the gin-casing and provided at one end with a hand-lever and intermediate of its ends with upwardly-disposed adjusting-arms and adapted to work against the lower swinging edge of the gin-breast, a coiled spring arranged on the stop-shaft and provided with a central upwardly-disposed loop arranged at one side of one of said adjusting-arms of the stop-shaft, an oscillatory trip-shaft arranged between the gin of the condenser and provided at one end with a terminal crank and adjacent to one end with an intermediate crank, a pitman connected with said intermediate crank of the trip-shaft and the loop of said spring, a weighted arm pivotally mounted at one side of the condenser and carrying a pawl engaging with the notches of the valve-door, a trip-lever pivotally mounted at one side of the condenser and having one end engaging beneath the terminal crank of said trip-shaft, and a rod connecting one end of said trip-lever with said weighted arm, substantially as set forth.

5. In a stop attachment of the class described, the combination with a gin having a hinged breast, an adjacent condenser having a hinged relief-valve in its casing, and the gin-feeder having a drive-belt; of a device for raising the gin-breast, a suitably-arranged trip-shaft for operating said device and provided with a terminal crank at one end, a releasing device for the trip-shaft adapted to engage with its terminal crank and having a connection with said relief-valve, a bell-crank lever mounted at one side of the feeder and carrying an idler tightening-pulley adapted to bear against said drive-belt, and an adjusting-bar connection between said terminal crank and said bell-crank lever, substantially as set forth.

6. In an attachment of the class described, the combination of a gin having a hinged breast carrying at the inner side of its lower rail keeper-staples, a transverse shaft journaled at the front side of the gin-casing and

carrying upwardly-disposed adjusting-arms
loosely extending through said keeper-staples, and provided with notches at their upper ends adapted to become automatically
5 engaged with the lower rail of the gin-breast
when the same is elevated, substantially as
set forth.

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

HENRY REMBERT.

Witnesses:

THOMAS Y. HOWARD,
W. J. B. MOOR.