

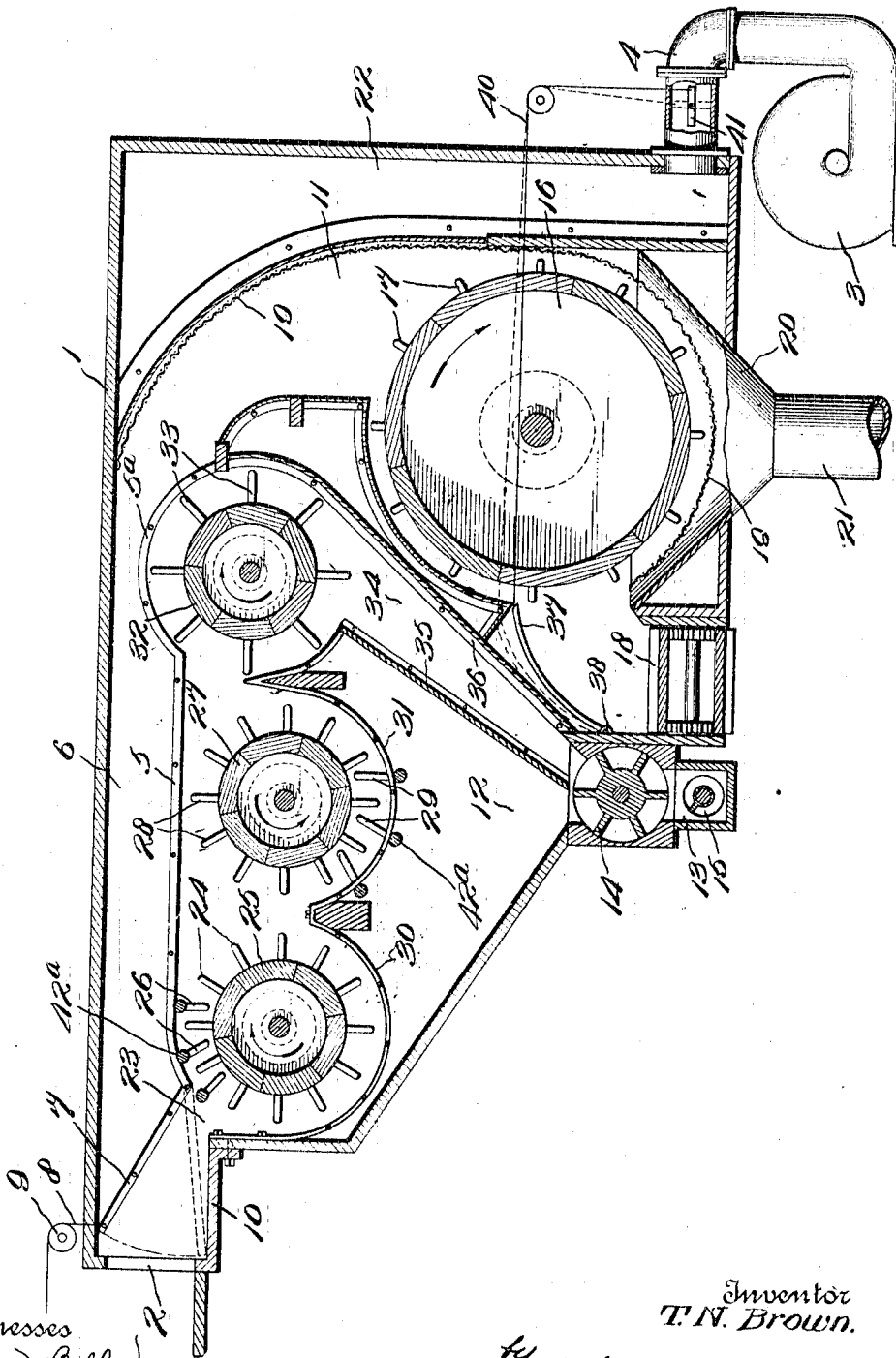
T. N. BROWN.
 APPARATUS FOR CLEANING COTTON.
 APPLICATION FILED JUNE 18, 1912.

1,059,270.

Patented Apr. 15, 1913.

2 SHEETS-SHEET 1.

Fig. 1.



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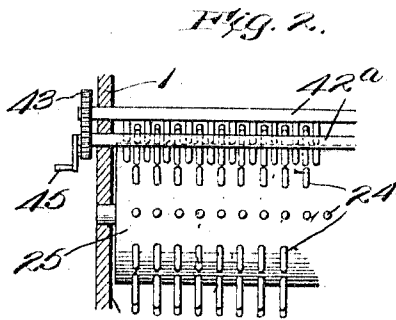
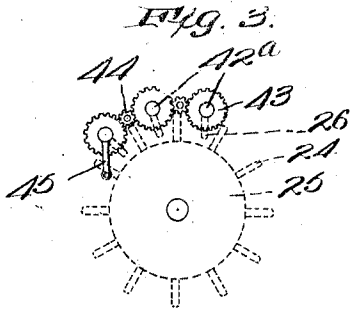
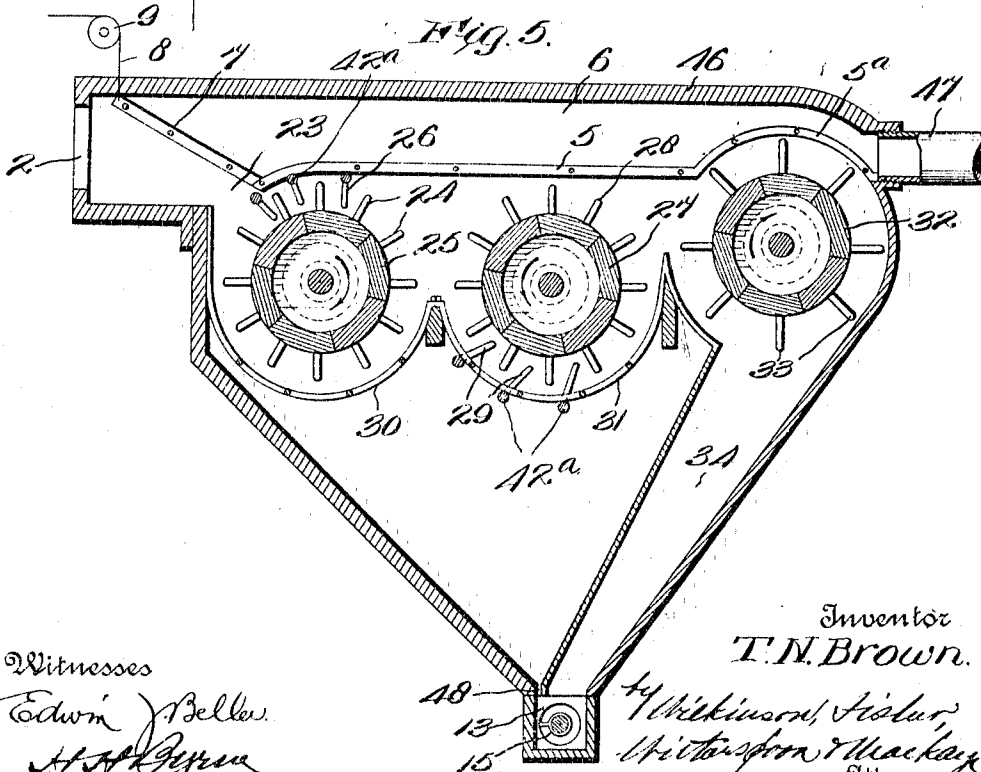
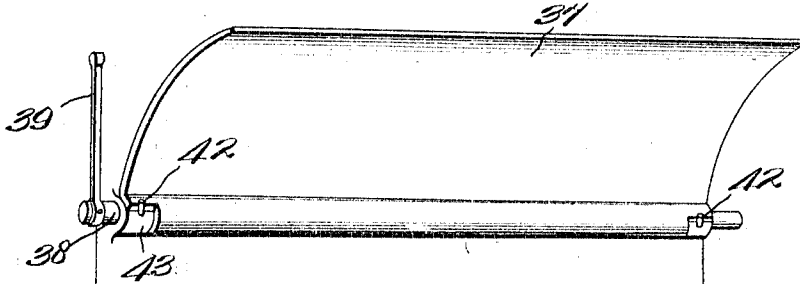


Fig. 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CLEANING COTTON.

1,059,270.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed June 18, 1912. Serial No. 704,436.

To all whom it may concern:

Be it known that I, THOMAS N. BROWN, a citizen of the United States, residing at Jacksboro, in the county of Jack and State of Texas, have invented certain new and useful Improvements in Apparatus for Cleaning Cotton; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to apparatus for cleaning cotton preparatory to its treatment by the ginning process, and has for its purpose to provide an arrangement whereby the burs, or other foreign matter, are separated from the seed cotton by a suction process.

The invention further contemplates an apparatus of the character in question which may be used independently for treating the matter in bulk, or in connection with either pneumatic or belt gin distributors, where such systems are installed.

Another object of the invention is to produce an apparatus which employs a minimum number of parts to the end of simplicity in construction and cheapness of manufacture; and wherein said parts cooperate in an effective manner for separating the seed cotton from all extraneous matter in a manner more thorough than heretofore obtained.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views:—Figure 1 is a transverse sectional view, with parts in elevation, of the apparatus complete; Fig. 2 is a front elevation of one of the drums and its associated mechanism; Fig. 3 is an end elevational view illustrating the means for regulating the stationary spikes, and showing in broken lines the cooperating spiked drum; Fig. 4 is a detail perspective view of the suction controlling device; and Fig. 5 is a view corresponding with Fig. 1 of the modified construction.

Referring to the construction in detail, 1 designates a suitable casing or boxing hav-

ing an opening 2 therein, through which the material is fed for the separating operation, and 3 is a fan communicating with said casing by a pipe 4 at the end opposite the feeding opening. A grate 5 is horizontally disposed and secured within the casing near the top thereof, and provides a lateral channel or passageway 6 through which clean cotton passes under the influence of suction created by the fan 3, as will be understood. At its forward end the fixed grate 5 has hingedly mounted thereon a gate 7, which is manually controlled through the medium of a cord or chain 8 passing over a pulley 9. Said gate 7 is adapted to offer an obstructing barrier to the passage 6, or be removed therefrom accordingly as the material to be treated is clean or dirty, as will be fully explained hereinafter.

The cotton is fed through the opening 2, and if it be clean cotton the gate 7 is lowered to rest upon the shelf 10 of the casing, as indicated in broken lines in Fig. 1, and the cotton is sucked directly through the passageway 6 and into the receiving chamber 11, and in the course of which dust or other foreign matter drops through the grate 5 and into the receiving chamber 12, from where it is delivered into the trough 13 by the rotary feeder 14, and from the trough 13 said material is carried off by a worm feeder or conveyer 15. The cotton, which has been delivered into the chamber 11, is thence carried by a rotatable drum 16, having spikes 17 on the periphery thereof, to the belt conveyer 18 and is carried off. A screen 19 shaped to the contour of the drum 16 is disposed immediately beneath said drum and affords the necessary supporting surface for the cotton which is being carried from the chamber 11 to the conveyer 18. Said screen further serves to permit of the separation of any dust, or other dirt, remaining in the cotton, such dirt falling into the funnel 20 and passing off through the funnel pipe 21. The screen 19 passes upwardly and is disposed over the drum 16 and separates the passageway 6 and receiving chamber 11 from the compartment 22 with which the funnel pipe 4 communicates, whereby to prevent the passage of the cotton into said compartment 22, but to allow of free passage of the air, as will be understood. If, however, the cotton is very dirty, or full of bolls, or burs,

the gate 7 is raised into that position shown in Fig. 1, wherein it interrupts the passage 6 and allows the free cotton only to be sucked therethrough by the funnel, while the impure cotton with the bolls, burs, dirt, etc., passes through the neck 23 and is engaged by the teeth or spikes 24 from the rotatable drum 25, said drum rotating in that direction indicated by the arrow. The material is carried by said spiked drum past a plurality of cooperating and stationary teeth 26, and is thence delivered to a second and similar drum 27 having the spikes or teeth 28. The drum 27 rotates in the direction counter to that of the drum 25, as indicated by the arrow, and a plurality of stationary teeth 29 are located beneath said drum 27 and communicate with the teeth thereof as with the teeth 24 and 26. This treatment of the cotton causes the dirt, dust, etc., to drop through the lobed grates 30 and 31, disposed respectively beneath the drums 25 and 27 and into the receiving chamber 12, from where it is forwarded by the rotary feeder 14 to the trough 13, and then carried off by the screw conveyer 15. The cotton passes from the second drum 27 to a third drum 32, having spikes 33, which rotates clockwise, and said material is then thrown up over the lobed section 5^a of the grate 5, whence it finds its way by suction into the chamber 11. The residue falls into the throat 34, provided by the partition 35 and 36, and is thence conveyed by the rotary feeder 14 to be carried off by the spiral conveyer 15.

Whether treating clean cotton or dirty cotton, the material collected within the chamber 11 is forwarded by the rotary drum 16 to the conveyer 18 in uniform quantity, and to the end that such quantities may be kept positive and uniform at all times an automatic control is provided. To this end an arcuate plate 37 is hingedly mounted to the casing at 38, and is connected to an arm 39, which in turn is connected by a cord 40 with a throttle valve 41 mounted within the pipe 4. The normal position of the controlling plate 37 is determined by a pair of pins 42 secured to the lugs 43, within which the plate shaft 38 is journaled. By thus providing the plate 37 immediately over the conveyer 18 it will be clear that any accumulation of the material at this location, which would otherwise cause the mechanism to be choked, will act by pressing against the plate 37 to close the valve 41, and thereby lower the sucking action within the passageway 6 and chamber 11. And when the excess of material is carried off by the conveyer 18, said plate 37 will drop by gravity and permit the valve 41 to open and thus restore the operation of the mechanism to normal.

The stationary teeth 26 and 29 which co-

operate with the spiked cylinders 25 and 27 respectively are adapted for adjustment, to the end of disposing the same at different angles with respect to the moving teeth 24 and 28, whereby to obtain a greater or less tearing action with said teeth, as desired. To this end, said stationary teeth are fixed in rows or series on shafts 42^a (see Figs. 2 and 3) that are journaled on the sides of the casing 1. Each shaft 42^a is fitted on one end with a pinion 43, which, by means of intermediate pinions 44, are rotated through a crank 45, that is mounted on the shaft of one of the end pinions. With this arrangement, it will be seen that in turning the crank 45, the several teeth or spikes 26 may be adjusted to different angles relatively to their cooperating teeth or spikes 24 and 28.

By having the passageway or throat 34 partly surrounding the third drum 32, and having metal arms or blades with strips of heavy canvas, rubber or leather, which act as valves, instead of the spikes 33, said drum may then serve in place of the rotary feeder 14.

The modified construction in Fig. 5 is designed for use where a plan is already installed and is equipped with an air distributor, and when so applied the casing 46 communicates directly with the pipe 47 leading to said distributor, and said casing would be located in the length of the conduit between the stand and wagon telescope. As in the arrangement shown in Fig. 1, the material is fed to the casing 46 through the opening 2 and, depending upon the condition of the material, the gate 7 is in its raised or lowered position as required. If the material be clean and the gate 7 lowered, said material will be carried through the passageway 6 above the grate 5 and through the pipe 47. If, on the other hand, the material be very dirty, or full of bolls, or burs, it passes through the neck 23 and is acted on by the teeth of the rotary drums 25 and 27 with the stationary teeth, as in the manner above explained, and is finally acted on by the teeth of the third drum 32, which throws the free cotton up through the lobed grate section 5^a, and the final residue passes through the throat 34 and into the trough 13, from where it is carried off by the spiral conveyer 15. Such foreign matter as is separated from the material by the action of the first and second drums and the fixed teeth or spikes 26 and 29 passes through the grate sections 30 and 31 into the accumulating chamber 12, whence it finally passes through the constricted opening 48 into the trough 13.

The construction of the apparatus shown in Fig. 5 is also capable of being used in installed systems employing distributors of

the belt type, as in this construction the material passes from the apparatus into the vacuum box.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

What I claim is:—

1. In a cotton cleaning apparatus, the combination of a casing; means for disintegrating the material within said casing; a grate disposed above said disintegrating means for separating the cotton from extraneous matter; means for creating suction within the casing upwardly through the grate for carrying the cotton thus separated; and means for removing said extraneous matter and the separated cotton from the casing, substantially as described.

2. In a cotton cleaning apparatus, the combination of a casing; rotary breakers for separating the cotton from extraneous matter; means for creating suction for carrying the cotton thus separated; means for collecting and carrying off the extraneous matter; and means for collecting and carrying off the separated cotton, substantially as described.

3. In a cotton cleaning apparatus, the combination of a casing; rotatable and stationary spikes for disintegrating the material; grates disposed above and beneath said cooperating spikes for separating the cotton from extraneous matter; means for creating suction within the casing for carrying the cotton thus separated; means for collecting and carrying off the extraneous matter; a rotatable drum for collecting the cleaned cotton within the casing; and a conveyer for carrying off the cleaned cotton, substantially as described.

4. In a cotton cleaning apparatus, the combination of a casing; a plurality of rotary breakers for disintegrating the material; grates disposed above and beneath said rotary breakers for separating the cotton from extraneous matter; means for collecting and carrying off the extraneous matter; means for creating suction within the casing for carrying the cleaned cotton; a rotatable drum for collecting the cleaned cotton; a screen disposed beneath said rotatable drum for separating residual foreign matter from said cotton; and a conveyer for carrying off the collected cleaned cotton, substantially as described.

5. In a cotton cleaning apparatus, the

combination of a casing; a rotatable spiked drum mounted within said casing; stationary spikes disposed above and cooperating with said spiked drum to disintegrate the material; a second rotatable and spiked drum adapted to receive the material from the first-named drum; stationary spikes disposed beneath and cooperating with said second spiked drum to further disintegrate said material; a third spiked and rotatable drum adapted to receive the material from said second spiked drum; a grate disposed above and in proximity to said spiked drums and adapted to permit of cotton passing therethrough; a grate disposed beneath the first and second named drums adapted to separate the disintegrated cotton from extraneous matter; means for collecting and carrying off said extraneous matter; a chamber for receiving the residue of material removed by the third spiked drum; and means for collecting and carrying off the cotton, passing through the grate above said spiked drums, substantially as described.

6. In a cotton cleaning apparatus, the combination of a casing; rotary breakers for disintegrating the material in the casing; a grate for separating the cotton from extraneous matter; means for creating suction for carrying the separated cotton within said casing; a conveyer for carrying off the cleaned cotton; an arcuate plate pivotally mounted adjacent the conveyer and adapted to collect and guide the cleaned cotton to the conveyer; a valve associated with said suction creating means for regulating the degree of suction; and connections between said pivotally mounted plate and said valve for actuating said valve through the pressure of material against said plate, substantially as described.

7. In a cotton cleaning apparatus, the combination of a casing; a rotatable and spiked drum journaled within said casing; stationary spikes mounted on a shaft and cooperating with said spiked drum for disintegrating the material; a pinion on said shaft; a manually operated pinion meshing with said shaft pinion for turning the shaft to adjust said stationary spikes relatively to the spikes of said drum; means for separating and collecting extraneous matter from the disintegrated material; and means for collecting and carrying off the separated cotton, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

THOMAS N. BROWN.

Witnesses:

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R. K. STEWART.