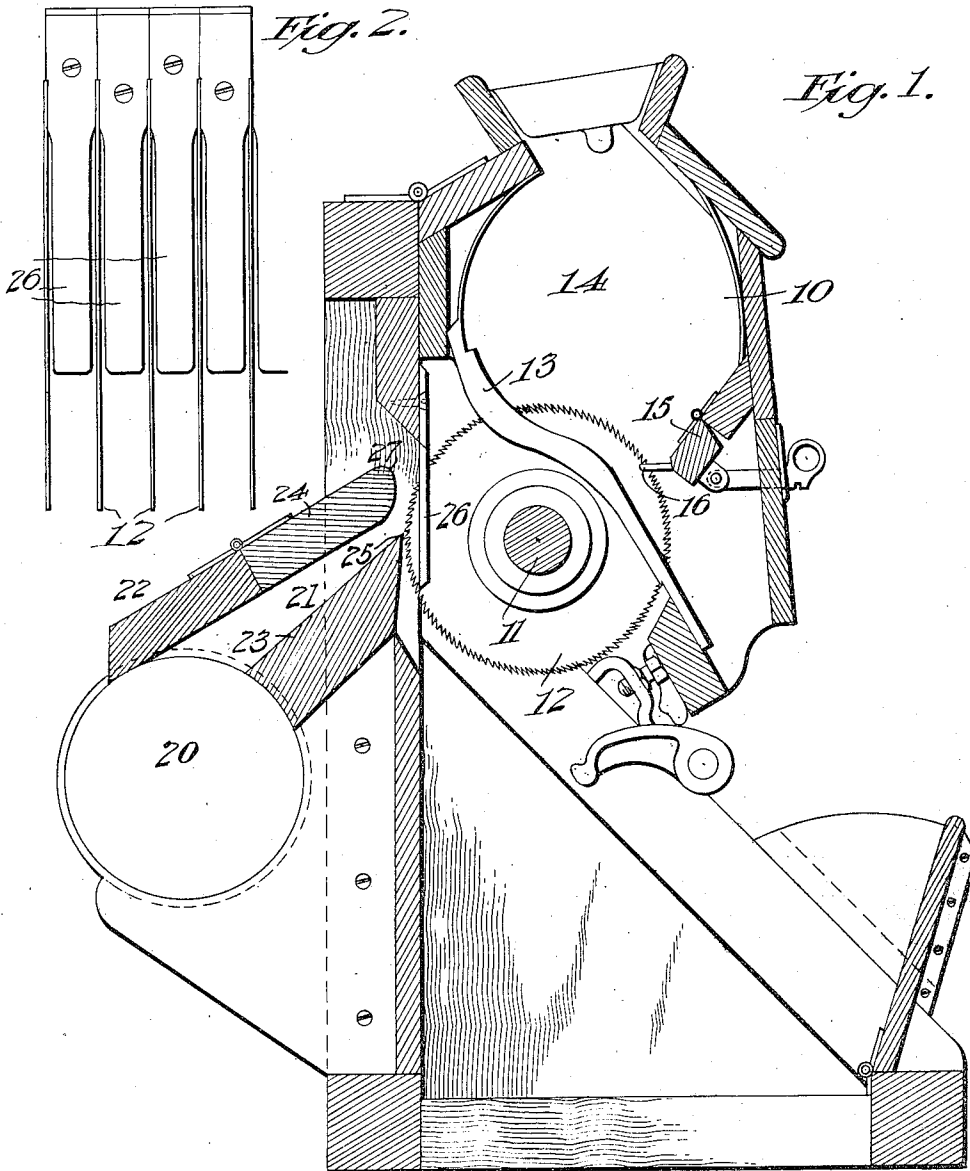


J. R. FORDYCE.
COTTON GIN.
APPLICATION FILED AUG. 17, 1909.

1,031,702.

Patented July 9, 1912.



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JOHN R. FORDYCE, OF LITTLE ROCK, ARKANSAS.

COTTON-GIN.

1,031,702.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed August 17, 1909. Serial No. 513,328.

To all whom it may concern:

Be it known that I, JOHN R. FORDYCE, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented an Improvement in Cotton-Gins, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention pertains to certain new and useful improvements in cotton gins, and relates more particularly to the means for removing the cotton from the saws and separating the motes and cotton.

Heretofore it has been customary to remove the cotton from the saw teeth of a cotton gin by means of brushes, or blasts of air directed more or less across the faces of the saws. These methods are open to various objections well known in the art, and many attempts have been made to overcome such objections. Among other methods it has been proposed to replace the prior air blasts by air suction devices, but owing to the peculiar action of the induced air currents, and the absence of proper nozzle formation suitable to the management of suction currents, these attempts have met with only partial success.

The object of the present invention is to overcome the difficulties heretofore encountered by providing improved means whereby the cotton may be removed from the saws and to so relatively dispose the elements thereof with respect to the saws that the recognized merits of suction or vacuum produced air currents may be rendered available for effectively removing the cotton from the saws free from motes and other impurities.

With these generally stated objects in view, the invention consists of the parts, elements and combinations hereinafter more fully described in connection with the accompanying drawings of a form or embodiment of the invention.

In the drawing—Figure 1 is a transverse sectional view of a simple form of saw gin, illustrating my invention; and Fig. 2 is a detail.

Referring to the drawing, 10 designates the casing of any usual or desired character provided with suitable means for supporting the shaft 11 on which is mounted the series of saws 12. Said saws extend be-

tween the usual ribs 13 into the roll box 14, formed between said ribs and the front of the casing. The parts thus far described, as well as the support 15 at the lower end of the roll box, and the teeth 16, are, or may be of any usual or desired character.

It is essential for proper results and clean product that not only the saws be fully cleared of their load of cotton each time they make a revolution, so as not to tear or injure the fiber by repeated drawing between the saw ribs, but that all trash, hulls and other waste constituting the motes be effectively removed from the cotton before the latter is finally taken from the saws and conveyed to the usual condenser or other desired place.

Located below the saws 12 is a vacuum chamber or conduit 20 connected to any usual or desired form of vacuum producing means, such as a fan or the like, which being well known need not be further described. Extending forwardly from the chamber or conduit 20 is the suction nozzle 21 formed by converging upper and lower walls 22, 23, the upper wall being provided with a hinged section 24, the lower wall terminating in a sharp lip 25 adjacent the peripheries of the saws. A series of fingers 26 or like means, which may for identification be termed a mote deflector, depend between the saws and terminate just below the inlet opening of the nozzle 21 to prevent motes entering the nozzle opening with the cotton fiber.

It will be noted that the nozzle 21 is so positioned that it will suck the cotton off the saws at a point just above the center of the saw axles. By means of this arrangement the motes, hulls and other trash are thrown off the saws, and upon striking the fingers 26 are deflected downwardly and away from the inlet of the nozzle. In addition to this by placing the nozzle to one side trash will not fall into the same as when located below the saws, even where fingers 26 are not employed, and by pointing the fingers or mote deflector directly downward, as shown, no trash accumulates on the back side of the fingers.

The hinged section 24 is rounded at 27 on the edge farthest from the inlet, whereby the intruding air from the outside and the air which is following the saws can combine to provide a resulting current which is most powerful and efficient and will effec-

tively remove the cotton. If the hinged member 24 were provided with a sharp point, similar to lip 25, the same would act as a dam or deflector to the current of air that naturally follows the saws, and thus impede removal of the cotton.

Obviously, changes in details might be made within the true scope of the present invention, and the form and relation of parts be altered to suit the conditions or use within the spirit of the present invention.

From the construction described as one convenient and practical form of the invention, it will be noted that between the point where the saws detach the fiber from the seed, as, for instance, where the saws pass between the ribs or other seed obstructing means and the opening of the suction nozzle, the saws act to throw off the motes and heavy particles by centrifugal action, and that between said point and the nozzle opening the mote deflector is arranged to separate the motes from the cotton fiber, with the result that clean cotton passes into the suction nozzle.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a cotton gin employing suction currents of air for removing cotton from the saws, the combination of a series of saws and coöperating means for detaching the fiber from the seed, and a suction nozzle having its inlet opening adjacent and exterior to the peripheries of the saws and wholly above the axis of the saws, said saws acting centrifugally between the point where they detach the fiber from the seed and the inlet of the nozzle to throw off the motes.

2. In a cotton gin, the combination of a series of saws and coöperating means to detach fiber from the seed at the upper portion of the saws, a suction nozzle having its inlet opening above the axis of the saws, and the wall of said nozzle first approached by the saw teeth as they revolve being provided with a rounded lip, a vacuum chamber in connection with the nozzle, and means to intercept motes thrown from the saws.

3. In a cotton gin, the combination of a series of saws, means co-acting therewith for detaching fiber from the seed, a suction nozzle having its inlet opening disposed adjacent to and exterior of the peripheries of the saws and above the center of the saws, the walls of the nozzle opening being in different planes extending transversely of and across the series of saws, and a vacuum chamber communicating with said suction nozzle.

4. In a cotton gin, the combination of a series of saws, a suction nozzle having its

opening disposed at the rear portion of the peripheries of the saws, means for causing the motes to be separated from the cotton before the latter reaches the nozzle opening at the rear of the saws, and a vacuum chamber communicating with said nozzle.

5. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening adjacent the peripheries of said saws and disposed at the rear thereof, the wall of said nozzle first approached by the saw teeth as they revolve being provided with a hinged member having a rounded lip, and a vacuum chamber communicating with said nozzle.

6. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening adjacent the peripheries of said saws, the wall of said nozzle last approached by the saw teeth as they cross the nozzle opening being provided with a sharp lip, the other wall thereof being provided with a hinged member having a rounded lip, and a vacuum chamber communicating with said nozzle.

7. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening adjacent the peripheries of said saws and above the saw axis, a series of fingers located between the saw axis and said inlet opening and extending downwardly between the saws to a point below said inlet opening, and a vacuum chamber communicating with said nozzle.

8. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening adjacent the peripheries of said saws, a vacuum chamber communicating with said nozzle, and a series of fingers located between the saw axis and said inlet opening and extending downwardly between the saws to a point below said inlet opening.

9. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening adjacent the peripheries of said saws and above the saw axis, a vacuum chamber communicating with said nozzle, and a mote board having slotted portions extended across the entrance to said nozzle.

10. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening adjacent the peripheries of said saws and at the rear portion thereof, that one of said walls first approached by the saw teeth as they revolve being provided with a rounded lip, a vacuum chamber communicating with said nozzle and a series of fingers extending across the entrance to said nozzle.

11. In a cotton gin, the combination of a series of saws, a suction nozzle having its inlet opening disposed at the rear and adjacent the peripheries of said saws, the wall of said nozzle last approached by the saw teeth

as they pass the nozzle opening being provided with a sharp lip, the other wall thereof having a rounded lip, and a vacuum chamber communicating with said nozzle.

5 12. In a saw gin employing air suction currents to remove cotton from the saws, the combination of a series of saws, a suction
10 nozzle having an opening of less extent than the diameter of the saws and disposed adjacent the rear portion of the saws, and means
extending over the nozzle opening for preventing motes, waste and the like entering
the nozzle.

13. In a cotton gin, the combination of a
15 series of saws and cooperating means for separating fiber from the seed, a suction nozzle, and a mote deflector interposed between
the nozzle opening and the point where the
saws remove the fiber from the seed to pre-

vent motes and the like from passing into
the nozzle opening.

14. In a cotton gin, the combination of a
series of saws and cooperating means for
separating fiber from the seed, a suction nozzle, and a mote deflector comprising a series
25 of fingers interposed between the nozzle opening and the point where the saws remove
the fiber from the seed to prevent
motes and the like from passing into the
nozzle opening.

30 In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN R. FORDYCE.

Witnesses:

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