No. 700,347. Patented May 20, 1902.

R. B. LUMPKIN.

COTTON GIN.

(Application filed Oct. 3, 1900.)

(No Model.) 2 Sheets—Sheet 1.

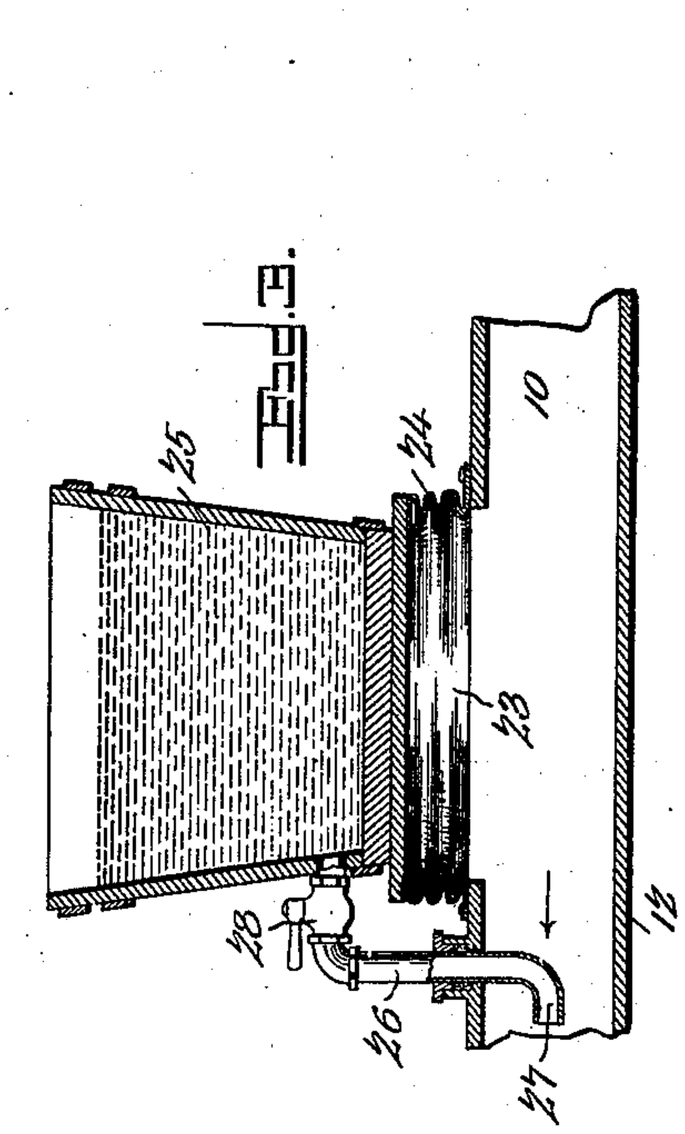

Fig. 3.

Fig. 1.

Fig. 2.

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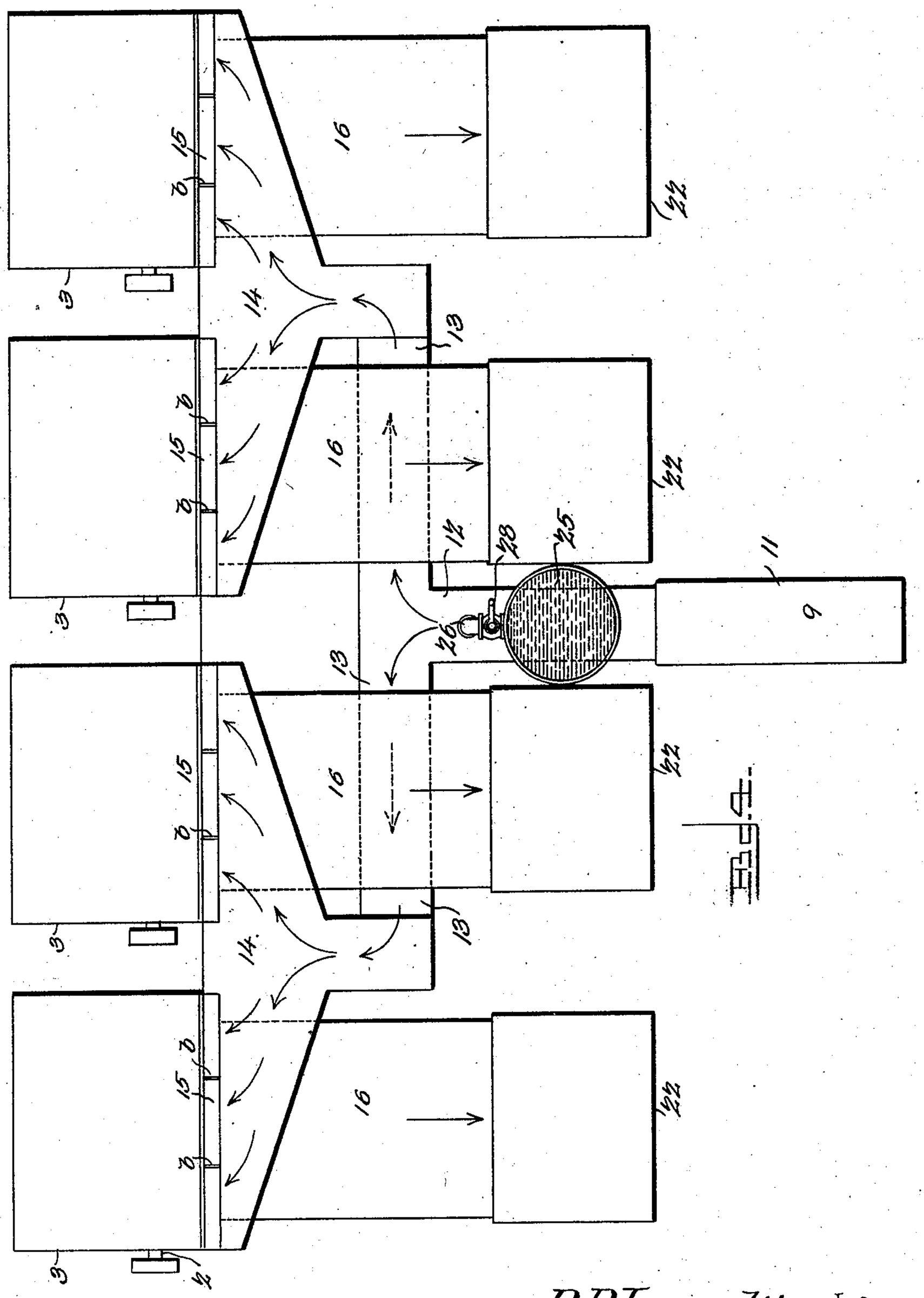

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UNITED STATES PATENT OFFICE.

ROBERT B. LUMPKIN, OF STORRS, TEXAS.

COTTON-GIN.

SPECIFICATION forming part of Letters Patent No. 700,347, dated May 20, 1902.

Application filed October 3, 1900. Serial No. 31,913. (No model.)

To all whom it may concern:

Be it known that I, ROBERT B. LUMPKIN, a citizen of the United States, residing at Storrs, in the county of Falls and State of Texas, have invented a new and useful Cotton-Gin, of which the following is a specification.

This invention relates generally to cotton-gins, and particularly to that class wherein the lint is removed from the gin-saws by a blast of air.

The object of the invention is to present a simply-constructed, thoroughly-efficient, and highly-durable form of cotton-gin in which the parts shall be so constructed and assembled as to be readily removable where repairs are necessary or where a broken or damaged part is to be replaced by a new part.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists of the novel construction and combination of parts of a cotton-gin, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of the specification, and in which like characters of reference indicate corresponding parts, there is illustrated a form of embodiment of the invention capable of carrying the same into effect, it being understood that the elements herein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the scope of the invention, and in these drawings—

Figure 1 is a view in sectional elevation of a cotton-gin characterizing this invention. Fig. 2 is a sectional detached detail view showing the manner of constructing the air-discharge blast-nozzle. Fig. 3 is a similar view showing a combined air-equalizing and fire-extinguishing device. Fig. 4 is a diagrammatic view in plan, exhibiting a battery of four gins and a blast-fan and duct to direct a blast of air against the gin-saws.

In the embodiment of the invention herein exhibited the gin-saws 1 are of the common or any preferred form and are mounted on the usual shaft 2, which has its bearings in a supporting-frame 3, which may be of any preferred construction.

The breast 4 of the gin, comprising the seed-board 5 and grate 6, is hinged at its lower side at 7 to the frame 3, whereby the breast, with the grate and seed-board, may be turned back and rest upon the floor supporting the gin, thereby leaving the saws freely exposed for purposes of cleaning or to permit of a gang of saws being lifted from the gin without removing the feeders 8 at the top of the stand. This manner of hinging the breast to the supporting-frame is of great importance, as where the saws are to be cleaned or removed from the supporting-frame a great amount of time and labor will be saved, as when the breast is turned back to the position described the saws, above pointed out, will be entirely freed from any obstruction that would hinder ready access thereto. As the grate and seed-board are associated permanently with the breast, the position of these parts will not be disturbed when the breast is moved away from the saws.

The blast-fan 9, which supplies the air for removing the lint from the teeth, discharges into a duct 10, which leads from the fan-casing 11, the duct opening into a transversely-disposed trunk 12, having branches 13 leading therefrom in a vertical direction, each branch being provided with a head 14 of a width corresponding to that of a pair of gins, as clearly shown in Fig. 4, the forward ends of the heads being partially closed by a downward-projecting and slightly outward inclined headboard 14^a. Secured to the headboard 14^a and to the lower side of the head are the discharge-nozzles 15, the discharge-mouths of which are elongated slots, the front wall of the nozzles being slightly curved to the rear, as shown in Fig. 1, whereby to direct a blast of air downward against the sides and peripheries of the gin-saws in the general direction of the rotation thereof and at a tangent to the teeth of the saws, by which arrangement the lint is blown directly from the teeth and downward and outward therefrom. The lips *a* of the discharge-nozzles are connected by braces *b*, spaced at appropriate distances apart, as shown in Fig. 2, the braces operating to hold the lips properly separated and to prevent their becoming displaced.

The offtake chutes or conveyers 16, which connect the lint-chamber and the condensers, are in elevation approximately horn-shaped—that is to say, curved in a vertical sense—

and of less cross-section at their intake ends 18 than at their discharge ends 17, and the discharge end of each chute is projected some distance into the condenser, whereby the said lint is discharged upward at an angle to the rear wall of the condenser, thereby causing an even distribution of the lint within the condenser and also preventing the lint from choking the mouth of the chute, which would operate to interfere with the proper operation of the apparatus.

It will readily be seen that if the discharge end 17 terminated flush with the front wall of the condenser as soon as the lint reached the lower edge of the mouth and then began piling up it would work back into the chute, whereas by disposing the discharge end in the manner described the lint may pile up within the condenser to a point a considerable distance above that at which the chute enters the condenser without any danger of the lint entering the chute. The end of the upper side of the chute is secured to the lower side of the head adjacent to the discharge-nozzles, thereby presenting a continuous contact-surface for the lint to impinge against from the said nozzles to the condenser. The end of the lower side of the intake end of the chute terminates some distance short of the saws, thereby leaving an open space between the saws and the said end; through which space the lint passes from the saws to the offtake-chutes, the said space also presenting a discharge through which motes and dirt from the lint may escape. Associated with the lower edge of the intake-mouth is an adjustable mote-board 19, the same consisting of an approximately U-shaped sheet of metal held in position on the chute by a bracket 20, carrying set-screws 21, (one only being shown,) by which the mote-board may be held at any desired adjustment. The side of the mote-board that projects within the intake-chute is preferably disposed at an angle to the upper side thereof, presenting thereby a constricted passage at the intake end of the chute, which will operate to prevent back pressure from the condenser from forcing lint back against the saws.

The disposition of the mote-board with relation to the saws, as herein described, is of the highest importance, inasmuch as ready adjustment may be effected according to the character of the cotton being ginned. Thus if the ginning is heavy the mote-board will be moved toward the saws, thereby widening the passage between it and the upper wall of the chute, so that all danger of clogging the intake will be obviated. If, on the other hand, the ginning is light, the mote-board will be moved away from the saws, thereby narrowing the passage between it and the upper wall of the chute and at a point where the best results will be attained. While the means herein shown for adjusting the mote-board will be effective in operation, it is to be understood that other means may be employed for the purpose and still be within the scope of the invention.

The condensers 22 may be of any usual or preferred construction, and therefore need no detailed description.

The blast of air from the fan varies in strength to some extent, and it is desirable to remedy this defect in order that the blast may be applied at an even and constant pressure. To effect this, there is provided a pressure-equalizer (designated generally 23) which in the form herein shown comprises a collapsible chamber 24, communicating with the upper side of the duct 10, the top of this chamber being weighted, as by a vessel 25, filled with water. When the pressure of the blast increases beyond a certain point, the chamber 24 expands and constitutes a reservoir for compressed air, and as the pressure of the blast decreases the said chamber, owing to the superposed weight thereon, will collapse, and thereby force a volume of compressed air into the duct, and thus operate to maintain the air-pressure in the duct at a uniform degree. As other suitable means may be employed for equalizing the air-pressure, it is to be understood that the invention is not to be limited to the precise form of mechanism here shown for the purpose.

Connected with the vessel 25 is a pipe 26, which leads to the interior of the duct 10 and is provided with a nozzle 27 and with a cock or valve 28. Should a fire originate in the gin, the valve 28 will be opened and water will be discharged into the duct and be carried by the air-blast into the branches and heads and be discharged upon the saws and thence into the chutes 16, thereby in a ready and effective manner causing extinguishment of the fire.

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

1. In a cotton-gin, an offtake-chute curved in a vertical plane and of less cross-section at its intake than at its outtake end, an adjustable approximately U-shaped mote-board having one member projecting into the intake end of the chute, and means for holding the mote-board at the desired adjustment.

2. In a cotton-gin, the combination with the saws, of an offtake-chute having its lower side terminating short of the saws, an approximately U-shaped mote-board carried by the said lower side and disposed below the axis of the saws, and having one member projecting into the intake end of the chute, and a blast-nozzle having an elongated discharge-mouth opening toward the chute.

3. In a cotton-gin, the combination with the saws and the condenser, of an offtake-chute approximately horn-shaped in side elevation, the smaller end constituting the intake and being disposed adjacent to the saws, and the larger end constituting the discharge and communicating with the condenser, the lower side of the intake terminating short of the saws presenting thereby a passage to permit

escape of motes and dirt, an adjustable approximately U-shaped mote-board carried by the lower side of the intake and having one member projecting into the chute, and blast-nozzles disposed above the saws and discharging in the direction of the chute.

4. In a cotton-gin, an offtake-chute curved in a vertical plane and of less cross-section at its intake than at its outtake end, a bracket carried by the intake end of the chute, an approximately U-shaped mote-board having one member projecting into the intake end of the chute and the other in engagement with the bracket, and means carried by the bracket for holding the mote-board at the desired adjustment.

5. In a cotton-gin, the combination with the saws, of an offtake-chute having its lower side terminating short thereof, leaving thereby an open space to permit escape of motes and dirt, an approximately U-shaped mote-board carried by the lower end of the chute and having one member projecting into the intake end thereof, a condenser communicating with the chute, blast mechanism, a head disposed adjacent to the saws and communicating with the blast-mechanism, a headboard partially closing the discharge end of the head, and a blast-nozzle secured to the headboard and to the lower side of the head and discharging toward the chute.

6. In a cotton-gin, the combination with the saws, of an offtake-chute, an approximately U-shaped mote-board carried by the chute and having one member projecting into the intake end thereof, a condenser communicating with the chute, blast mechanism, a head disposed adjacent to the saws and communicating with the blast mechanism, a blast-nozzle carried by the head, and pressure-equalizing mechanism connected with the blast mechanism.

7. In a cotton-gin, an offtake-chute, an approximately U-shaped mote-board having one member projecting into the intake end thereof, blast mechanism discharging in the direction of the chute, and pressure-equalizing mechanism coacting with the blast mechanism.

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

ROBERT B. LUMPKIN.

Witnesses:
J. H. PUNCHARD,
B. T. CORNING.