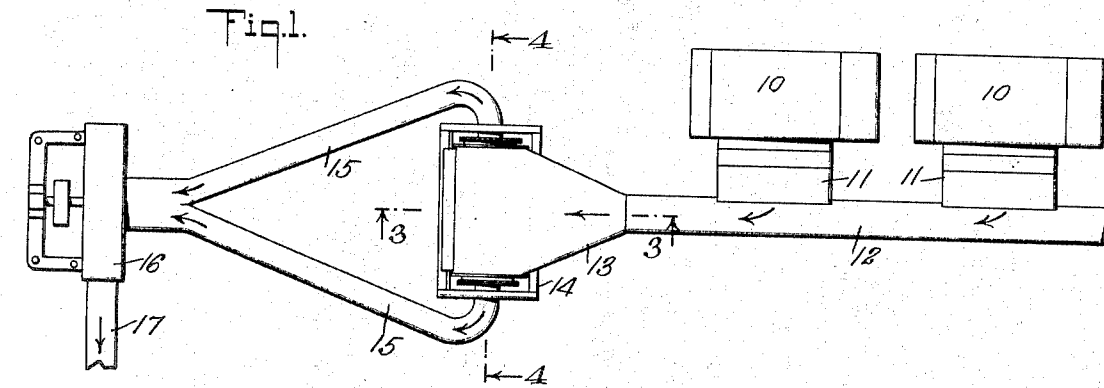
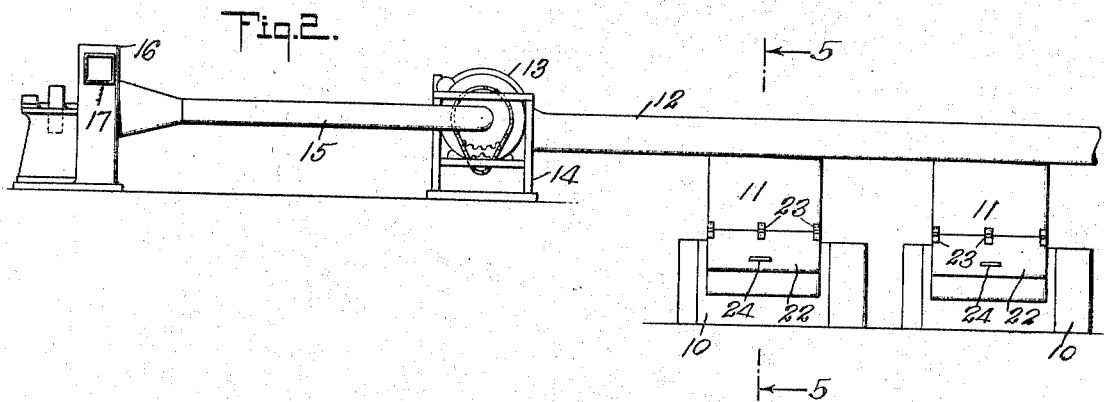
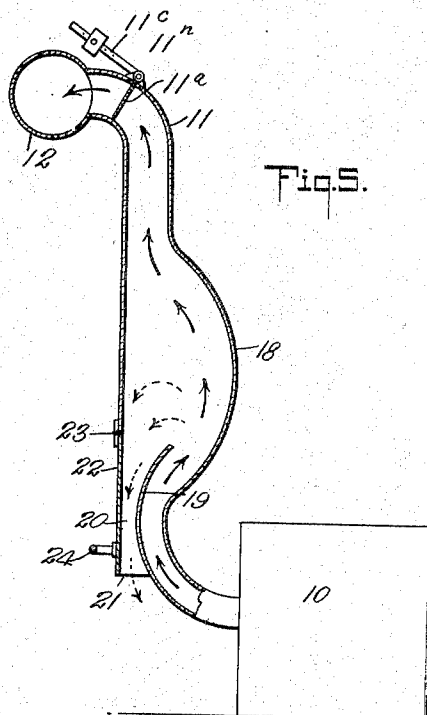


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COTTON LINT CONDENSER AND FLUE,
APPLICATION FILED JULY 19, 1918.

1,312,291.

Patented Aug. 5, 1919.

2 SHEETS—SHEET 1.



WITNESSES

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Fig. 3.

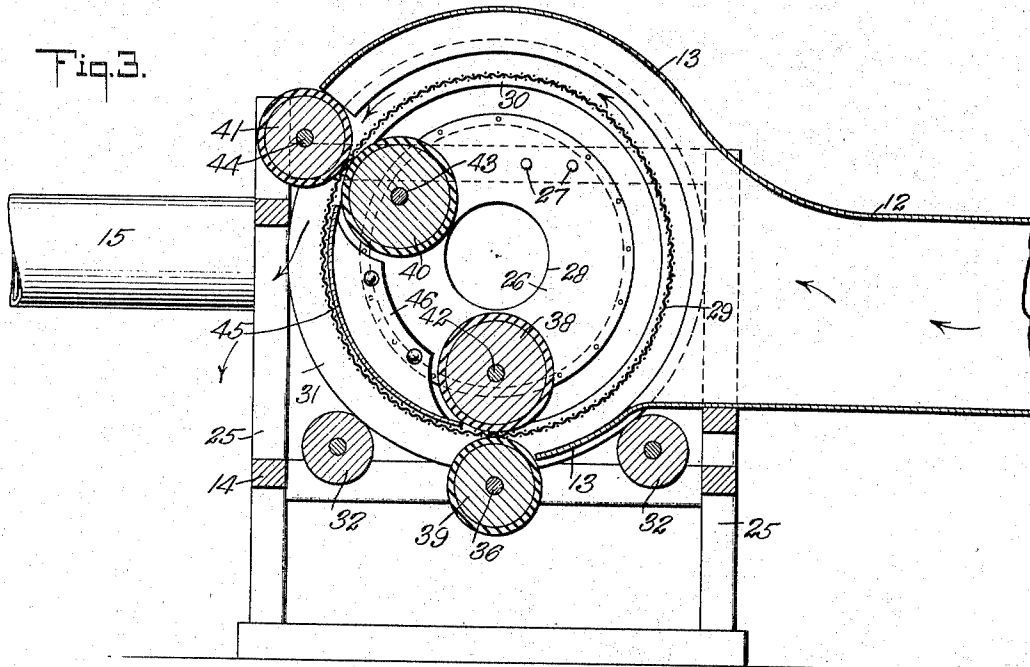
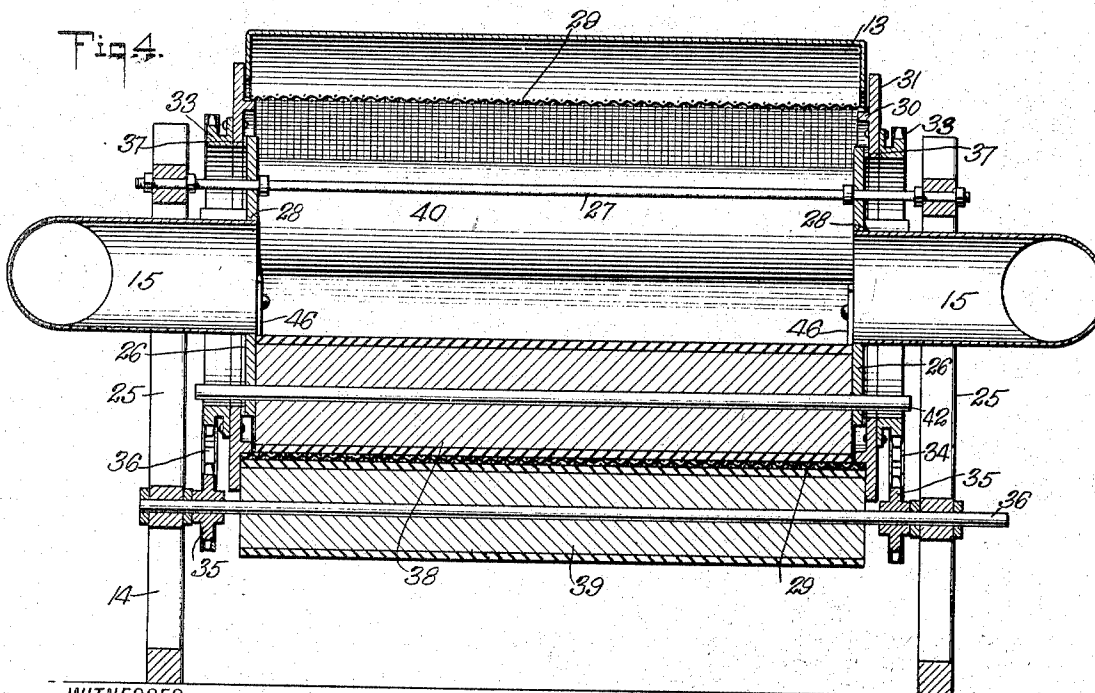


Fig. 4.



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UNITED STATES PATENT OFFICE.

CLAUDE WILSON WICKER, OF MEMPHIS, TENNESSEE.

COTTON-LINT CONDENSER AND FLUE.

1,312,291.

Specification of Letters Patent.

Patented Aug. 5, 1919.

Application filed July 19, 1918. Serial No. 245,742.

To all whom it may concern:

Be it known that I, CLAUDE W. WICKER, a citizen of the United States, and a resident of Memphis, in the county of Selby and State of Tennessee, have invented a new and Improved Cotton-Lint Condenser and Flue, of which the following is a description.

In cotton ginning the cotton or lint is taken from the saws and blown to a lint flue either by an air blast or by a brush revolving at a high rate of speed and creating an air pressure. The cotton is blown through a short lint flue onto a collector generally termed a condenser and drops from the condenser to the floor or to a receiver. In oil mills also the cotton seed is treated in much the same way as in ginning, the lint being taken off the seed by the saws and an air blast or brush wheel and passes through a lint flue to a condenser.

My invention relates to a novel lint flue and to a novel condenser, an incidental result of the condenser being that the air exhausted from the condenser is carried to a fan from which it may be discharged to do useful work as hereinafter referred to.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a plan view largely diagrammatic of an apparatus embodying my invention;

Fig. 2 is a side elevation thereof;

Fig. 3 is an enlarged section taken on the line 3-3, Fig. 1;

Fig. 4 is an enlarged section taken on the line 4-4, Fig. 1;

Fig. 5 is an enlarged transverse vertical section taken through my improved lint flue that leads from the gin or linter as indicated by the line 5-5, Fig. 2.

In the illustrated example, 10 represents conventionally the gins or linters, two being shown in the present instance, and each discharges the lint to a short lint flue 11 hereinafter more particularly referred to, the upper end of the short flue 11 delivering to the main lint flue 12 which is enlarged as at 13 to form a partial casing for a condenser designated generally by the numeral 14 and hereinafter particularly referred to.

From the opposite ends of the condenser, blow pipes 15 lead, through which the air exhausted from the condenser is drawn by a fan 16 and discharged from the latter as at 17.

Referring to Fig. 5 it will be seen that the short lint flue 11 connects at the lower end with the back of the gin or linter 10 and said flue is bellied as at 18 whereby a whirling of the lint is created as indicated by the arrows. A partition 10 adjacent to the inlet of the flue 11 divides said flue, the passage 20 at one side thereof having an outlet 21 into which passage any heavy material drawn into the flue 11 will gravitate as the lint is given the whirling movement. An adjustable gate 22 is provided to regulate the outlet passage 20, said gate being here shown as hinged at its upper end as at 23 and provided with a suitable handle 24. A valve 11^a may be provided in the flue 11 adjacent to the main flue 12, said valve being pivoted at 11^b and provided with a weight arm 11^c.

The condenser which as a whole is designated 14, includes a suitable frame 25 and a condensing cylinder mounted therein. Disks or heads 26 are provided, held in fixed relation to the frame 25 by any suitable means, there being shown rods 27 extending through said heads and bolted to the frame. The disks 26 present central openings 28 from which the blow pipes 15 lead. A revolving condensing cylinder 29 of screen material is secured to flanges 30 on rings 31 revolvably supported as by resting on rollers 32 (Fig. 3). Suitable drive means is provided for the cylinder 29 and its rings 31, the means shown consisting of sprocket wheels 33 on said rings 31 and driven by chains 34 running over drive sprockets on a shaft 36. To make a tight joint between the revolving rings 31 and the heads 26 I provide packing rings 37, which may be of any suitable material. The casing 13 forming the delivery end of the main flue 12 and the remainder of the cylinder is cut off from the influence of the suction in the following manner. The screen body of the cylinder 29 revolves between pairs of rollers, there being an inner roller 38 and an outer roller 39, and approximately 90° distant from the same are inner and outer rollers 40, 41, as clearly seen in Fig. 3, said

rollers all being rubber-covered to give a tight sealing action against the cylinder. The air seal is completed by a curved shield 45 extending from one pair of rollers 38, 39 to the other pair of rollers 40, 41, and held in fixed position in any suitable manner, as by forming end flanges thereon suitably fastened to the adjacent fixed heads 26, the numeral 46 indicating one of such flanges in Fig. 3. The roller 39 is shown as carried by the drive shaft 36 and suitable shafts 42, 43, 44 are provided for the rollers 38, 40 and 41, said shafts turning in suitable bearings provided in the heads 26 or other fixed part of the structure. By the described arrangement that portion of the screen cylinder between the respective pairs of rollers will be cut off from the influence of the suction created in the cylinder by the air drawn through the same. The condensing cylinder travels in the direction of the lint arriving from the flue 12 and the lint is carried over the cylinder and beneath the roller 41 where it is relieved of the suction action and permitted to drop to the floor or to any suitable receiver (not shown).

The above described apparatus constitutes an automatic lint flue system having various important advantages over the apparatus now employed, among the advantages being that the product discharge from the condenser is of a higher grade and more uniform. The described condenser eliminates to a great extent the dust now incident to plants of this general character, the provision of the auxiliary flue between the main flue and the gin or linter and so formed and disposed as to cause the gravitational separation of the heavier foreign matter from the lint before passing to the main lint flue contributes materially to the production of a high-grade product in the condenser. Furthermore, the apparatus can be operated with much less power than systems now in general use and the exhaust air discharged from the fan can be directed to a cyclone or back to the linter or gin where it may be used for the purpose of blowing the lint from the saws in which case the brush wheel of the linter or gin is removed.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention, I do not limit myself strictly to the mechanical details herein illustrated, since manifestly the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I

claim as new, and desire to secure by Letters Patent:

1. A lint condenser including a cylindrical screen, means to deliver material to the screen at the exterior, means to produce suction within the screen to cause the lint to adhere thereto, rollers adjacent to and bearing respectively against the inner and outer peripheries of the screen to cause the adhering lint to be carried through the rollers, and means adjacent to the rollers to cut off the entrance of air to the screen, after passing between the rollers, to free the lint from the influence of the suction.

2. In an apparatus of the class described, a lint condenser including a revoluble cylindrical screen, adapted to receive lint at the outer peripheral surface thereof, means to produce suction within the screen to cause the lint to adhere thereto, and pairs of rollers distant from each other, each pair including a roller adjacent to the inner periphery of the screen and a roller turning adjacent to the outer periphery of the screen, and an air-excluding guard adjacent to the screen extending from one pair of rollers to the other.

3. In an apparatus of the class described, a lint condenser including a revoluble cylindrical screen, rings on said screen at the ends, fixed heads for said cylinder adjacent to the said rings, and forming with said rings air tight connections, said fixed heads having openings formed therein, means to turn said screen, and suction-producing means leading into said openings said fixed heads.

4. In a lint condenser, a cylindrical rotatable screen, spaced rollers arranged within the screen and adapted to contact with one side thereof at spaced points, an air excluding guard arranged within the cylindrical screen between the spaced rollers, means to produce suction within the screen to cause the lint to adhere thereto, and means to supply the lint in proximity to the exterior of the screen.

5. In a lint condenser, a cylindrical rotatable screen, pairs of rollers spaced from each other, the rollers in each pair engaging the screen upon the inner and outer sides thereof, and air excluding guard arranged near the screen and extending between one roller of one pair to one roller of the other pair, a casing surrounding a portion of the screen and extending from one roller in one pair to one roller in the other pair, and means to produce suction within the screen.

CLAUDE WILSON WICKER.