

A. W. WASHBURN & C. D. KEELER.

LINT COTTON CLEANER.

APPLICATION FILED APR. 14, 1910.

995,993.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

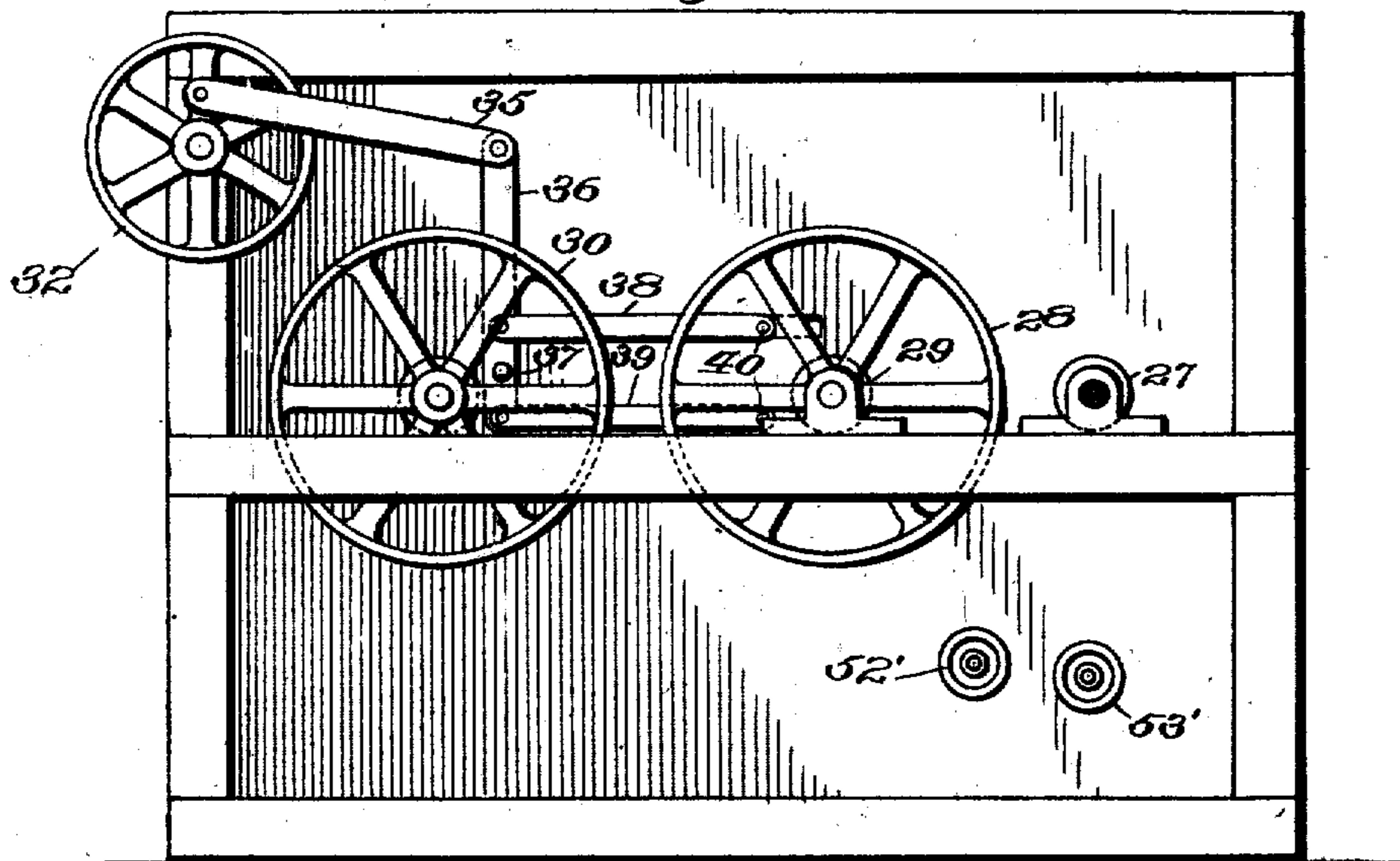
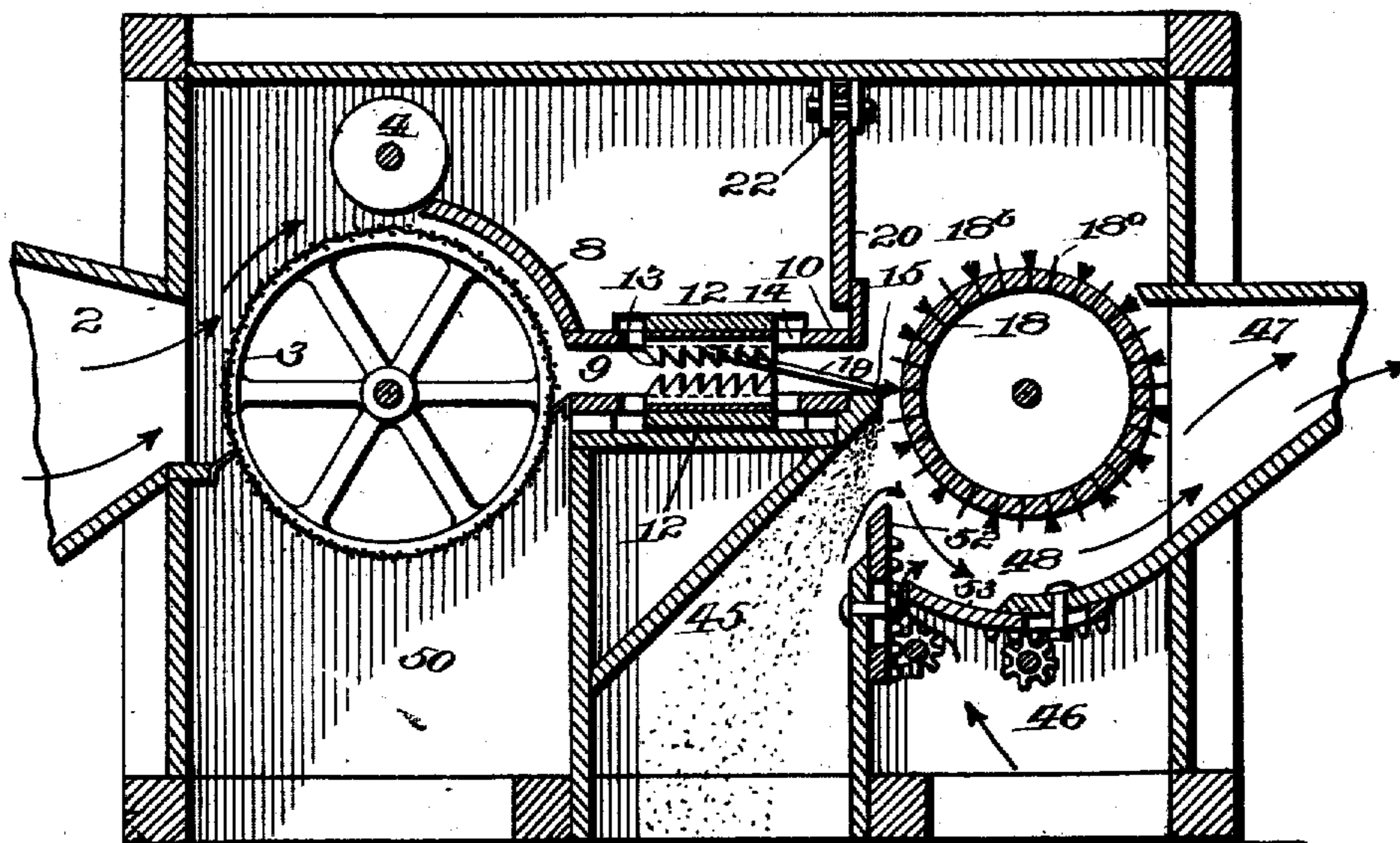


Fig. 2.



Witnesses

*J. P. Finkel*

*A. E. Haumann*

Inventors

*A. W. Washburn*

*C. D. Keeler*

by

*Eugene C. Brown*

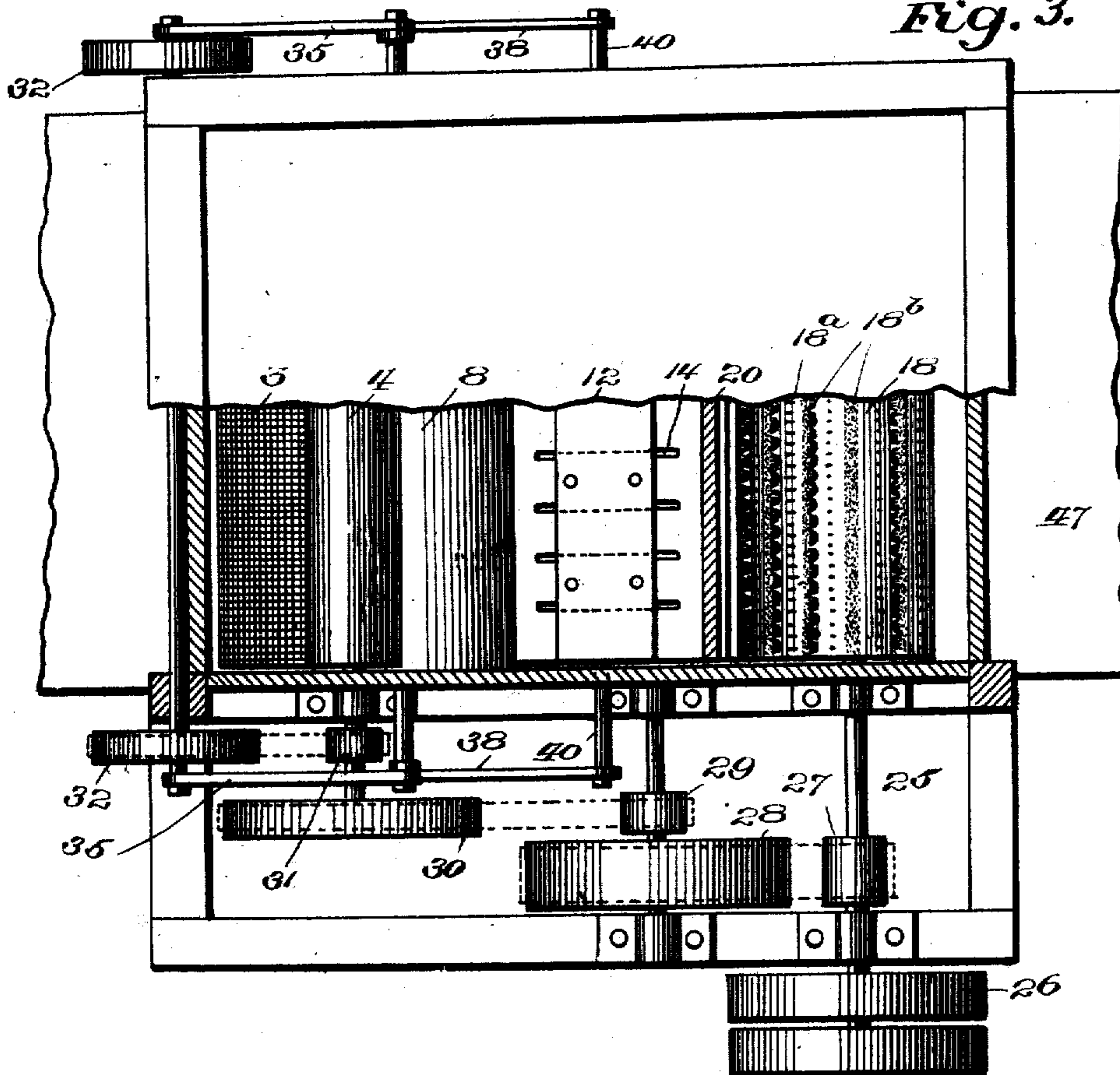
Attorney

## LINT COTTON CLEANER.

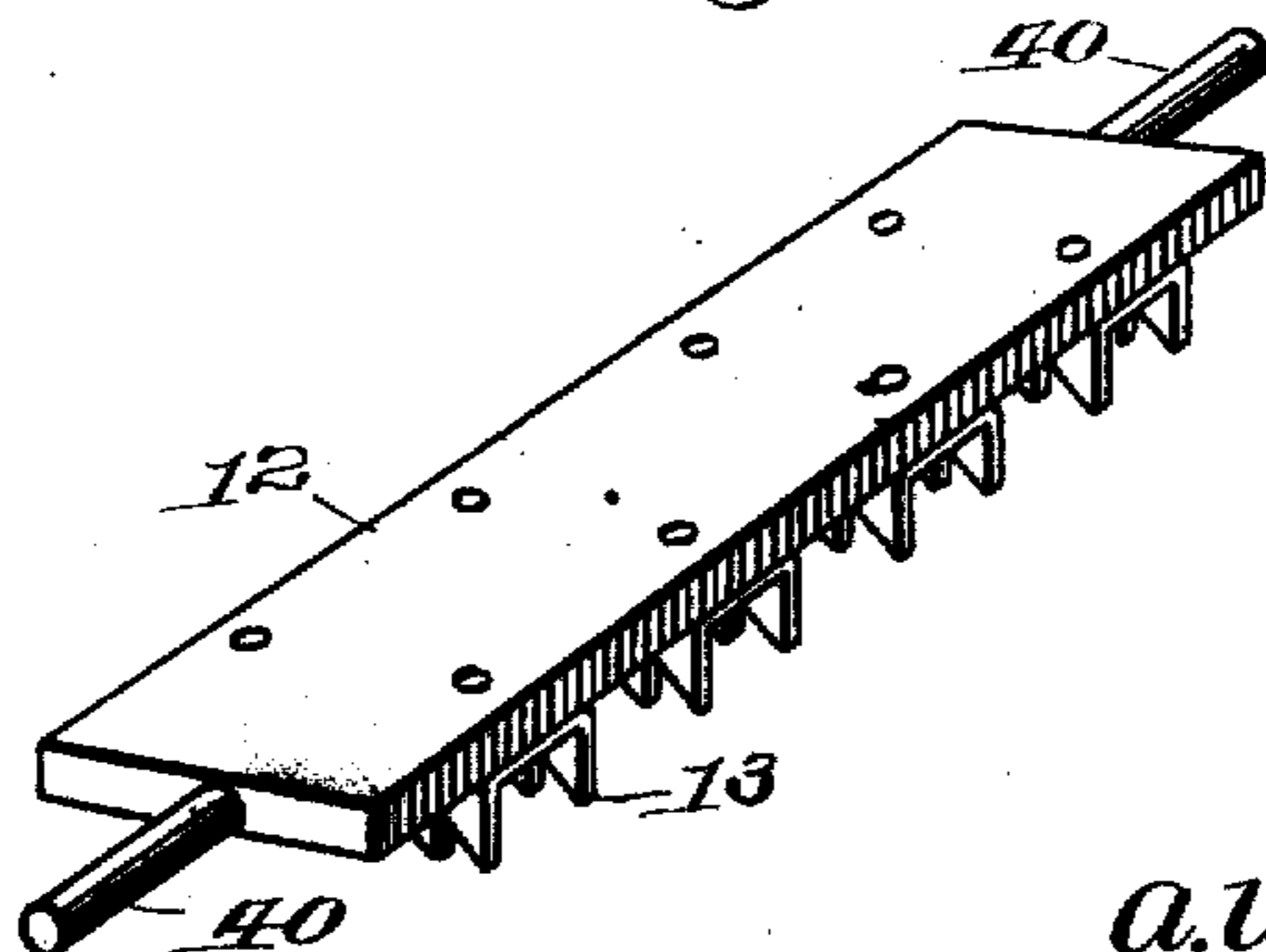
**Patented June 20, 1911.**

2 SHEETS--SHEET 2.

*Fig. 3.*



*Fig. 4.*



J. G. Trinkel

A. E. S. Hammann.

Inventors

*A. W. Washburn*  
*C. D. Keeler*

by

Engine C. Brown  
Attorney

# UNITED STATES PATENT OFFICE.

ARTHUR W. WASHBURN, OF MEMPHIS, TENNESSEE, AND CHARLES D. KEELER, OF PERTHSHIRE, MISSISSIPPI.

## LINT-COTTON CLEANER.

995,993.

Specification of Letters Patent. Patented June 20, 1911.

Application filed April 14, 1910. Serial No. 555,496.

*To all whom it may concern:*

Be it known that we, ARTHUR W. WASHBURN and CHARLES D. KEELER, citizens of the United States, residing, respectively, at 5 Memphis, in the county of Shelby and State of Tennessee, and at Perthshire, in the county of Bolivar and State of Mississippi, have invented new and useful Improvements in Lint-Cotton Cleaners, of which the following is a specification.

Our invention relates to machinery for handling cotton and particularly to machines for cleaning lint cotton.

The object of our invention is to provide 15 means for removing any trash and dirt that may be in the lint cotton and to greatly improve the grade of the cotton after it has been ginned by the common gin stands.

In the treatment of cotton it is the usual 20 practice to conduct the lint cotton from the gins by an air blast to a condenser where it is formed into a continuous bat and then delivered between metal rolls which subject the same to high pressure, the sheet being 25 then lapped or laid up in the form of a bale.

It is our purpose to subject the lint cotton to a further cleaning and carding process before it passes to the press in order to improve the grade of cotton.

We are aware that it has been proposed to pass the cotton bat, after it leaves the condenser rolls, over a grill and to subject it to an air-blast for the purpose of forcing 35 foreign particles from the cotton before it passes to the pressing rolls. These prior methods were, however, not effectual for the purpose of removing the dirt and trash as the foreign particles are tenaciously held in the bat and cannot be dislodged by means of an air-blast. In our present method we subject each successive portion of the bat to a combined carding, combing, and brushing, thus positively acting upon every particle of 45 the lint cotton.

Our invention will be more clearly understood from the following description in connection with the accompanying drawings, in which—

50 Figure 1 is a side elevation of a machine embodying our invention; Fig. 2 is a vertical longitudinal section thereof; Fig. 3 is a top plan view of the same, the top of the casing being partly cut away; and Fig. 4 is

an enlarged detail view of one of the feeding 55 devices.

The lint cotton from the ordinary gins is delivered by means of an air blast feed through the flue or conduit 2 and received upon a gauze-covered condenser drum or 60 cylinder 3, and passing under a roller 4, preferably of wood, is compressed into a bat and passing under the curved guide 8, is delivered upon the table 9. The cotton bat is fed through the channel between the table 65 and the presser-board 10, by reciprocating serrated feeders 12 having oppositely disposed teeth 13, which project through longitudinal slots 14 in the table and board, and is yieldingly held at the edge 15 of the table 70 and in the path of the revolving brushes and needles on the carding and brushing drum 18, by means of a spring 19, secured to the under side of the presser-board. The spring 19 is assisted in holding the bat by the 75 weight of the board 10 and the guide 8 which may be suspended by a hanger 20 from the brackets 22, or in any other suitable manner to permit a limited vertical movement. 80

The needle and brush drum 18 is mounted upon the drive-shaft 25, which carries the main belt pulley 26. Motion is transmitted through the pulleys 27, 28, 29, 30, and 31 to the crank pulley 32, to which is connected 85 the link 35 for oscillating the lever 36, pivoted at 37, and connected by links 38, 39, to the pins 40 of the serrated feeders 12, for the purpose of causing the alternate reciprocating motion thereof. 90

As previously described, the lint cotton bat is fed along the table 9, by means of the reciprocating serrated feeders 12, and is forced under the spring 19, where it is yieldingly clamped and held by the spring assisted by the weight of the presser-board 10 and the guide 8. The cotton projects into the path of the combing and brushing cylinder or drum 18, at the point 15, where it is subjected to a very thorough cleaning action. 100 This feature of our invention is believed to entirely new in this art. In cotton gins the cotton is subjected first to the action of a saw drum or a spike drum, with which co-operates a brush drum which acts as a doffer 105 to remove the lint cotton from the teeth or spikes. The cotton bat is also sometimes subjected to an air blast to further cleanse it of

foreign particles. The action of our combined combing and brushing drum is quite different from the ginning or the cleaning processes mentioned. We provide a drum with alternate rows of needles 18<sup>a</sup> and brushes 18<sup>b</sup>, which act alternately upon the successive portions of the cotton bat as it is fed under and held by the spring 19. The needles thoroughly comb and card the lint and expose the particles of dirt and trash which remain in the lint cotton after the ginning process, and the brushes 18<sup>b</sup> then act directly to throw the foreign particles off at an angle into the chamber 45 as indicated, while the lint cotton adheres and is carried around by the drum and delivered into the channel 47, leading to the usual cotton press. The drum 18 is revolved rapidly and the quick succession of alternate rows of needles and brushes acting upon the cotton as it is spring-held at the point 15, causes a most thorough cleansing action which we believe is far more efficient than in any prior method.

The air-blast or current from the gins which carries the lint cotton through the flue 2 and deposits it upon the gauze drum 3, is relieved through the drum into the passage 50, so that the limp bat formed under the roller 4 may pass under the guide 8 and be fed along the table under ordinary atmospheric pressure. After it has been subjected to the combing and carding action of the needles, which straighten out all the naps of the fiber, it is then caught by the brushes and it is met by currents of air drawn in from the chambers 45 and 46, by the rapidly moving drum. The air-current issuing from the chamber 45, approaches the drum in a direction substantially perpendicular to its surface, and we have found that in order to properly convey the cotton through the channel 48, it is essential to supply an additional air-current which may join the other current more nearly tangential to the drum. We, therefore, provide for a second air-current to issue from the chamber 46, as indicated by the arrow. The volume of the air supply and the proportions of the two currents is accurately regulated by sliding gates or valves 52, 53, by rack and pinion movements controlled from the outside of the casing by means of hand-wheels 52', 53'.

The advantages to be derived from the use of our invention in the treatment of lint cotton after it has been ginned will be apparent to those familiar with cotton handling machinery. The efficient method of removing the trash and dirt between the ginning and pressing operations disclosed herein, by which the grade of the lint cotton is greatly improved, will be fully appreciated by cotton operators.

While we have described somewhat in detail an apparatus by which our invention

may be carried out, it will be evident to those skilled in this art that changes can be made therein without departing from the spirit of our invention and will be within the scope of our claims, which are—

1. A lint cotton cleaner comprising a combing and brushing roll, a guide-way for the cotton, a weight adapted to press down upon the cotton in the guide-way, a spring arm bearing upon the end of the guide-way adjacent said roll, and a reciprocable feed device operating to feed the cotton through said guide-way and under said spring arm where it may be engaged by said combing and brushing roll.

2. A lint cotton cleaner comprising a pervious cylinder to receive an air-blast carrying the lint cotton from the gins and condense it into a limp bat, an exhaust passage for the air passing through said cylinder, a combined combing and brushing device comprising a cylinder provided with alternate sets of projecting needles and brushes, a vertically movable guide and presser between said condensing cylinder and said device, a feeder for forcing the cotton bat under said guide and into the path of said combing and brushing device, and a spring-pressed clamping device for holding the bat at the point where it is operated upon by said needles and brushes.

3. An apparatus for cleaning lint cotton comprising an air-blast feeder flue leading from the gins, a condensing cylinder over which the cotton passes, an exhaust passage for the air passing through said cylinder, a pressing roller to compress the cotton into a limp bat, a table, reciprocable feeding mechanism coöperating therewith, a cleaning device comprising a cylinder having on its periphery sets of needles and brushes, and means at the end of said table to positively and yieldingly hold the cotton in the path of said needles and brushes.

4. An apparatus for cleaning lint cotton comprising an air-blast feeder flue leading from the gins, a condensing cylinder over which the cotton passes, a pressing roller to compress the cotton into a limp bat, a table, reciprocable feeding mechanism coöperating therewith, comprising upper and lower serrated members arranged to slide alternately in opposite directions, and a combined combing and brushing device to operate upon the cotton as it leaves the table.

5. Apparatus for cleaning lint cotton comprising a flue to conduct the cotton-lint-laden air-currents from the gins or other source of supply, a condensing cylinder to receive the lint, means for compressing the lint into a bat, means for exhausting said air-currents through said cylinder, a cleaning and carding roll having alternate rows of needles and brushes, feeding mechanism for delivering the bat to said roll, a yield-

ing clamping device for holding successive portions of said bat in the path of the needles and brushes, means for delivering air from a plurality of independent channels upon said cleaning roll, and means for regulating the opening of said channels independent of one another.

6. A lint cotton cleaner comprising an air-blast feeder flue, a condensing cylinder  
10 to receive the lint cotton from the gins, a carding and brushing roll, reciprocable means for feeding the cotton from said cyl-

inder to said roll, and a spring-pressed clamping device for holding the cotton at the point where it is being carded and 15 brushed.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ARTHUR W. WASHBURN.  
CHARLES D. KEELER.

Witnesses:

C. E. NANCE,  
W. H. CRAVEN.