

J. E. CHEESMAN.
 APPARATUS FOR TREATING LINT.
 APPLICATION FILED JAN. 24, 1911.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.

1,042,394.

Fig. 1,

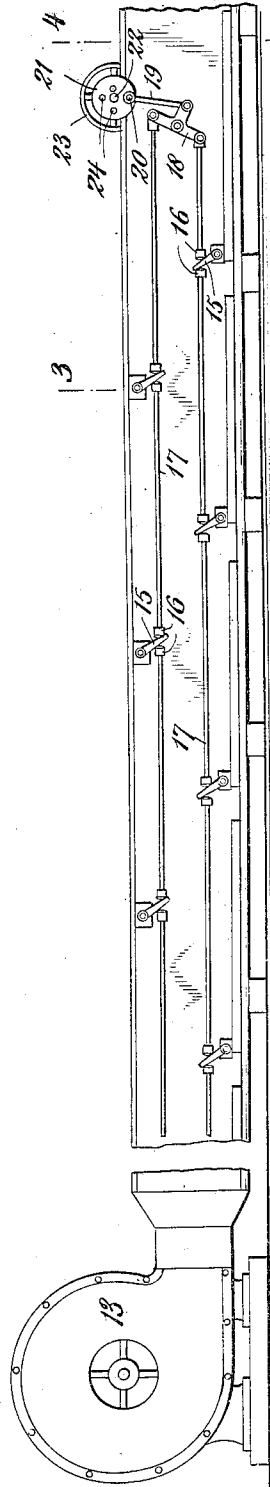


Fig. 7

Fig. 6,

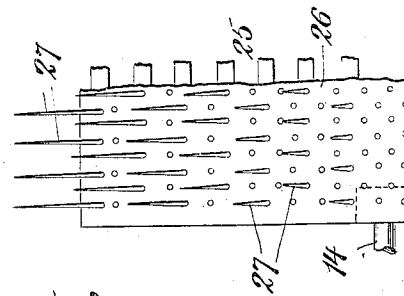
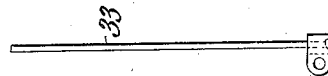
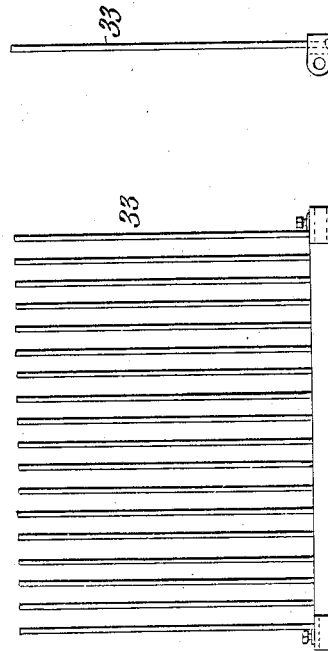


Fig. 5,



WITNESSES:

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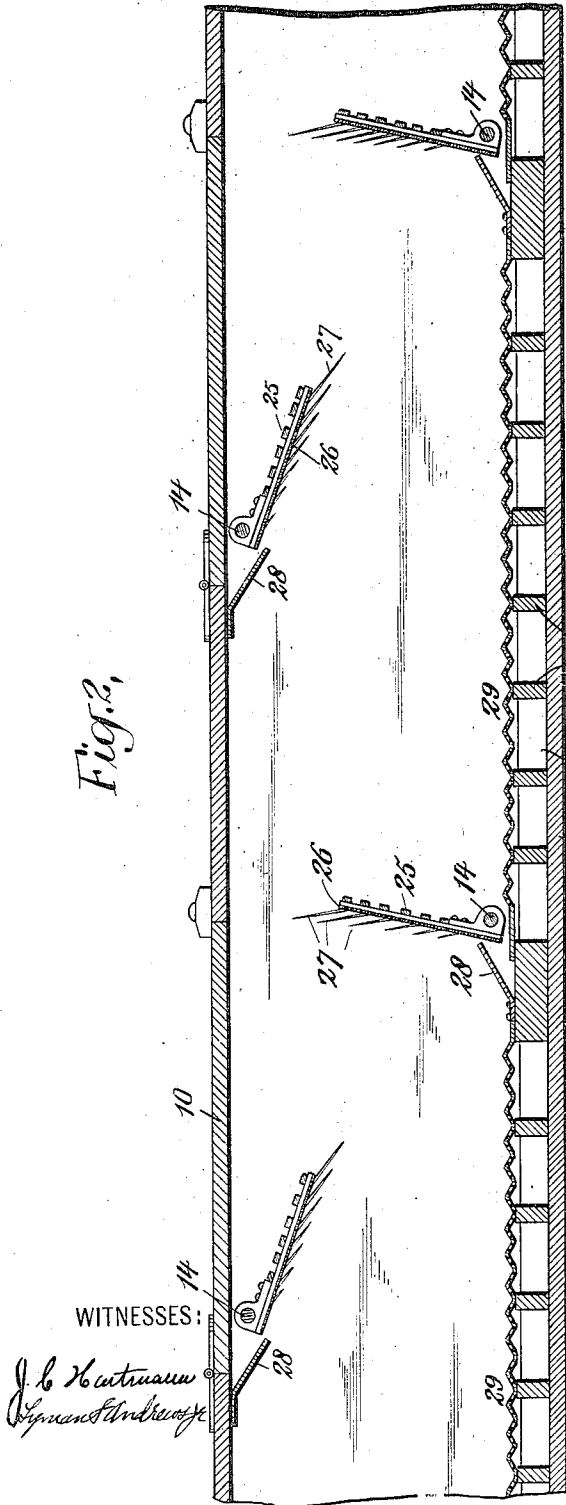
James E. Cheesman
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 Chapin Hayman
 his ATTORNEYS

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 2 SHEETS—SHEET 2.

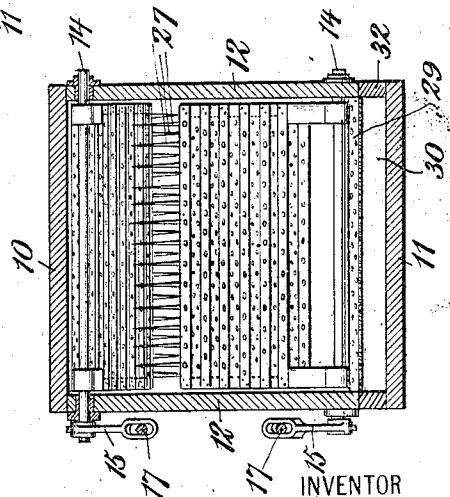
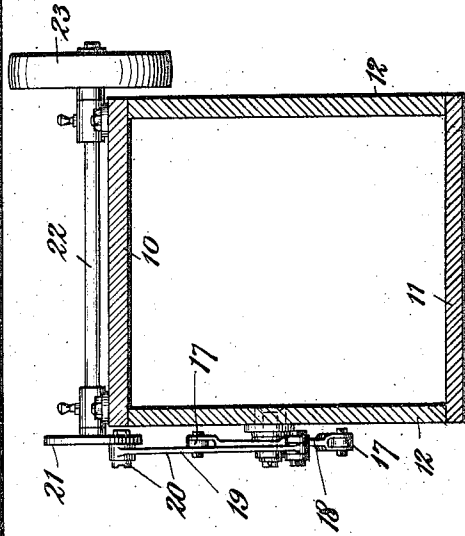
Fig. 2,



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Fig. 4,



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UNITED STATES PATENT OFFICE

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APPARATUS FOR TREATING LINT.

1,042,394.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed January 24, 1911. Serial No. 604,319.

To all whom it may concern:

Be it known that I, JAMES E. CHEESMAN, a citizen of the United States of America, and a resident of South Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Treating Lint, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to means for treating lint after it has been ginned so as to separate the fibers and clean them.

In copending applications filed coincidentally herewith and serially numbered 604,320, and 604,318, I have disclosed a process and an apparatus for treating lint in which the lint while carried by air currents through a lint flue is obstructed in its passage by pins or projections located diagonally in the path of the air currents, and hence in the path of the lint, so that the lint will be temporarily held by the pins or projections, and by reason of the action of the air thereon while it is so temporarily held the fibers will be separated and the dust, dirt, sand, leafy trash, etc., removed therefrom.

My present application relates to the same subject matter except that while in the apparatus disclosed in application serial number 604,318 the pins or projections are held stationary during the operation of the device; in the present application means are provided for vibrating the same so that in the operation of the device they successively present themselves at different angles to the air currents and path of movement of the lint.

My invention also consists in various structural features in connection with the pins or projections and the supports therefor, as will presently be pointed out.

My invention also consists in many novel details of construction and combinations of parts such as will be presently explained, and in order that my invention may be thoroughly understood I will now proceed to describe an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a view in side elevation of a lint flue constructed in accordance with my invention. Fig. 2 is a

view in central longitudinal section through a portion thereof upon an enlarged scale. Fig. 3 is a view in transverse section therethrough upon the plane of the line 3-3 of Fig. 1. Fig. 4 is a view in transverse section therethrough upon the plane of the line 4-4 of Fig. 1. Fig. 5 is a partial front view in detail of one of the vibrating elements. Figs. 6 and 7 are detail views respectively in front and side elevation of a modified form of vibrating element which may be employed.

The portion of the lint flue illustrated comprises a substantially rectangular box-like structure having a top portion 10, a base 11, and vertical sides 12. The lint flue, as a whole, is arranged to be connected with any suitable means for forcing currents of air therethrough, a conventional representation of a fan or blower being shown at 13 in Fig. 1 for this purpose, the said blower being arranged to force air currents through in the direction of the arrow in Fig. 1.

Located near the top and bottom of the lint flue are a plurality of horizontal shafts 14, each being arranged to carry a plurality of obstructing fingers as will presently be explained. The shafts penetrate the side walls of the conduit and are so arranged that they may be oscillated by any suitable means. For example they may be provided upon the exterior thereof with operating arms 15, which arms are adapted to be engaged by abutments 16 upon longitudinally disposed vibrating rods 17. The said rods are connected with a rocker 18, and the rocker is suitably connected by means of a connecting rod 19 with a crank pin 20 mounted upon a rotatable disk 21. The disk 21 is mounted upon a horizontal shaft 22 journaled in bearings upon the top of the conduit, the said shaft being provided with an operating pulley 23. In the rotation of the shaft 22 and disk 21 movements of reciprocation will be imparted to the rocker arm 18, and corresponding movements of reciprocation will be imparted thereby to the longitudinal rods 17. As a convenient means for varying the throw of the reciprocating means, I have provided the disk with a plurality of openings 24 disposed at different distances from the axis of rotation of the shaft 22, and in any one of which the crank pin 21 may be mounted. The longi-

tudinal rods 17 in their reciprocation will impart movements of oscillation to the horizontal shaft 14 and consequently to the parts carried thereby. The reciprocating elements carried by the shafts 14 comprise an example of my invention shown in Figs. 2 to 5 inclusive, a lattice framework 25, a perforated plate 26 mounted thereon, and a plurality of diagonally disposed fingers or pins 27. These fingers or pins are preferably of increasing length commencing from the point nearest the shaft 18 as shown, and the said pins are arranged substantially all the way across the conduit and for a substantial distance between the top and bottom thereof. These pins or projections are preferably longitudinally tapered, though not necessarily so. Diagonally disposed guards or deflecting plates 28 are supported by the top and bottom portions of the conduit in proximity to the bases of the vibrating elements so that the lint will be guided away from the bases of the elements toward the ends thereof.

Along its lower portion the conduit is provided with a perforated screen 29, the said screen being preferably corrugated as shown, and a closed chamber 30 is disposed beneath the said screen, such chamber being formed between the corrugated screen 29 and the base 11, the said chamber being transversely divided by a plurality of partitions 31 as shown. The side walls 12 may conveniently have removable portions 32 constituting doors (see particularly Fig. 3), by which access may be had to the interior of the chamber 30 at various points along the same.

The operation of the apparatus is as follows. Seeded lint being suitably introduced into the conduit is carried therethrough by means of the air currents produced by the fan or blower 13, or other means used for the purpose. The vibrating elements comprising the shafts 14, frames 25, perforated plates 26, and pins 27, will obstruct the path of the lint, particularly by reason of the fact that in the vibration thereof the said vibrating elements will be swung into a position where they are arranged substantially across the lint flue as shown in the lower portion of the lint flue in Fig. 2. When in such position the elements will receive the lint, most of which will hang upon the pins 27. In the vibration of these elements they will swing down from such a position as is shown in the lower part of the lint flue, to a position corresponding with the positions in which the elements are shown in the upper part of the lint flue; and as they swing over to this oblique position the lint will be freed from the pins and will pass onward until they are again obstructed. During the time the lint is held by the vibrating elements the action of the air thereon will tend to separate the fibers

and to cleanse them from the dust, dirt, sand, leafy trash, etc., which the lint carries with it. This refuse will fall down upon the screens and will pass therethrough into the receiving chamber 30, the transverse partitions 31 tending to prevent the refuse from being blown up again into the conduit. The screen will prevent any fibers from falling through into the chamber 30 as will be well understood, and the corrugations in the screen will tend toward a rubbing action such as will assist the deposit of the refuse into the chamber 30, the passage of the refuse being further assisted by the fact that the corrugations cause perforated portions of the screen to be presented at an angle to the air currents.

It is intended that the vibrating movement of the elements be a slow one, the shaft 22 being driven quite slowly for this purpose.

It will be noted that the vibrating elements are arranged successively in opposite directions, that is, the upper and lower vibrating elements alternate with each other. I have also arranged that the upper sets will vibrate alternately with the lower sets so that when the lower sets are in their most transverse position the upper sets will be in their most diagonal position. This is readily arranged in the construction shown by the opposite disposition of the operating arms 15, coupled with the fact that the rocker 18 causes the longitudinal rods 17 to move in opposite directions. By reason of this alternate operation of the elements the lint received by one of the vibrating elements will be temporarily held thereby and then released at the moment the next successive operating element is in a position ready to receive it. This results in a step by step movement throughout the conduit such as is very effective in the treatment of the lint.

The employment of the perforated plate 25 is efficacious not only in permitting the air currents to pass freely through the vibrating element but also as tending to assist in the separation of the dust, dirt, leafy trash, etc., from the fibers.

In Figs. 6 and 7 I have shown a modified form of the vibrating element which consists merely of a plurality of fingers 33 radially disposed with respect to the shaft 14. The form of fingers thus shown is disclosed in the copending application Serial Number 604,318 above referred to, but in such application the fingers are relatively stationary in the operation of the apparatus while in the present application they are connected with the oscillating shaft 14 by which they are vibrated.

What I claim is:

1. In an apparatus for treating lint, the combination with a conduit, and means for

causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of a plurality of free ended fingers disposed therein in the path of the flow of the currents and movement of the lint, and means for oscillating the said fingers.

2. In an apparatus for treating lint, the combination with a conduit, and means for causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of horizontal shafts located in proximity to the walls of the conduit, means for oscillating the said shafts, and fingers carried by the said shafts and arranged to project into the path of the air currents and the lint carried thereby.

3. In an apparatus for treating lint, the combination with a conduit, and means for causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of vibrating elements arranged to project into the path of the air currents and lint in their passage through the conduit, the said vibrating elements comprising a frame, a perforated plate carried thereby, and a plurality of pins projecting diagonally from the said frame and plate, shafts for supporting the said vibrating elements, and means for imparting movements of oscillation to the said shafts in the operation of the apparatus.

4. In an apparatus for treating lint, the combination with a conduit, and means for causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of a plurality of vibrating elements successively disposed along the said conduit and provided with fingers arranged to project into the path of the moving air currents and the lint carried thereby, and means for imparting movements of oscilla-

tion to the successive elements alternately in opposite directions.

5. In an apparatus for treating lint, the combination with a conduit, and means for causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of a plurality of free ended fingers disposed therein in the path of the flow of the currents and movement of the lint, means for oscillating the said fingers in the operation of the apparatus, and a stationary perforated screen arranged in the bottom of the conduit, the said conduit being provided with a closed chamber beneath the said screen.

6. In an apparatus for treating lint, the combination with a conduit, and means for causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of a plurality of free ended fingers disposed therein in the path of the flow of the currents and movement of the lint, means for oscillating the said fingers in the operation of the apparatus, and a stationary perforated corrugated screen arranged in the bottom of the conduit, the said conduit being provided with a closed chamber beneath the said screen.

7. In an apparatus for treating lint, the combination with a conduit, and means for causing air currents to flow therethrough to carry lint after it has been seeded through the conduit, of a plurality of free ended longitudinally tapered fingers, disposed therein in the path of the flow of the currents and movement of the lint, and means for oscillating said fingers.

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Witnesses:

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