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LINT SEPARATOR AND CLEANER.

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Fig. 2.

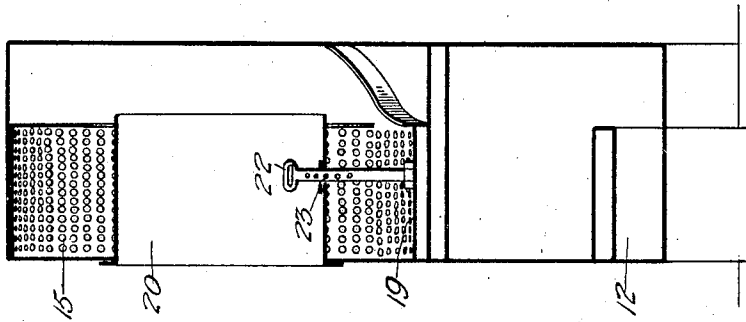
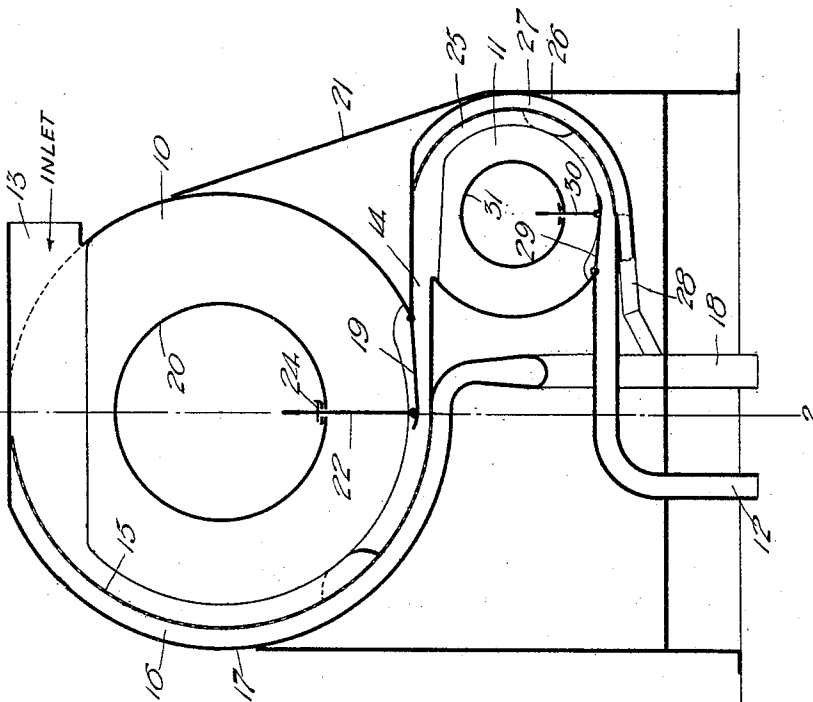


Fig. 1.



WITNESSES

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LINT SEPARATOR AND CLEANER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRANK W. MEYERS, CHARLES L. CAMPBELL, and FRANK H. McSWEENEY, all citizens of the United States, and residents of Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Lint Separators and Cleaners, of which the following is a specification.

Our present invention relates generally to cotton apparatus, and more particularly to means for separating and cleaning lint cotton and removing dust and dirt therefrom, our object being the provision of a machine which will continuously operate to remove dust and dirt from lint and cotton by the mere introduction of the cotton thereto with an air blast, and which will handle the cotton without the use of movable parts, except for purpose of adjustment, continuously in an effective and efficient manner for the intended purposes.

In its specific aspect our invention resides in the details of construction and arrangement to be now described with respect to the accompanying drawing, which forms a part of this specification and in which—

Figure 1 is a vertical longitudinal section through our improved machine, and

Fig. 2 is a vertical transverse section taken substantially on the line 2—2 of Fig. 1.

Referring now to these figures, our invention provides a lint separating and cleaning apparatus including an upper annular chamber 10 and a lower annular chamber 11, of which the latter is substantially reduced in size as compared to the former and coöperates therewith to receive lint therefrom, the final lint discharge pipe 12 extending from the chamber 11 in one direction, and the initial lint intake 13 extending in the relatively opposite direction into the upper portion of the chamber 10.

The communicating channel 14 connecting the lower portion of the chamber 10 with the upper portion of the chamber 11, which is at once the outlet of the chamber 10 and the inlet of the chamber 11, receives the lint and after it has passed downwardly along the perforated wall 15 at one side of the chamber 10 subsequent to its introduction therein by any suitable air blast through the intake 13, the dust, dirt, and other foreign particles being scraped from the lint through the perforate wall 15 into the dust and dirt

chamber 16 between the inner perforate wall and the outer imperforate section 17 of the wall of the chamber 10, which space 16 communicates at its lower end with the upper end of the dust and dirt discharge pipe 18.

At the receiving end of the communicating channel 14 between the chambers 10 and 11 is pivoted a damper 19 which controls the amount of air passing into the chamber 11 along with the cotton lint flowing down the inner surface of the perforate wall 15, the remaining air passing to the exterior through a centrally disposed outlet tube 20 which opens laterally through one side of the main housing 21 in which the casings or chambers 10 and 11 are disposed, as particularly seen in Fig. 2. The adjusting rod 22 connected at one end to the free end of the controlling damper 19 has its opposite end extending into the air outlet tube 20 so that it may be conveniently reached from the exterior for adjusting the position of the damper and is provided with openings 23 arranged in a series and through selected openings of which a pin or like fastening member 24 may be extended in order to support the damper 19 in desired elevation.

The air and partly cleaned lint passing into the chamber 11 through the connecting channel 14 is forced partly around the chamber against an inner perforate wall 25 and in a direction relatively opposite to that of its passage along the wall 15 of the chamber 10, or in other words, along a plane the curvature of which is reversed with respect to that of its plane of movement through the chamber 10.

As in the chamber 10 the perforate wall 25 of the chamber 11 is spaced from the adjacent portion 26 of its outer imperforate wall, to form a dust and dirt chamber 27 the lower end of which communicates by means of a connecting tube 28 with the dust and dirt discharge pipe 18.

At the inner end of the cotton lint discharge pipe 12 before mentioned, a damper 29 is pivoted within the low pressure chamber 11, and this damper like the damper 19 above described is controlled by an adjusting rod 30 which extends upwardly into the centrally disposed annular and lateral opening air outlet tube 31 of the chamber, so that it may be just as conveniently reached as the adjusting rod 22 of the damper 19. The damper 29 of the chamber controls the

amount of air passing with the cotton lint into the cotton lint discharge pipe 12.

It is obvious that in operation the fact that the lint is forced against perforate walls successively with a controlled volume of air and the plane of movement of the volume of lint to be cleaned is changed by virtue of the fact that one of the said walls is reversely curved with respect to the other will bring about a quick thorough cleaning, and it is further to be observed that effective and efficient results are thus attained with an apparatus which is simple, strong, and durable, and economical as to first cost and up-keep.

In practice, our improved machine is installed at the terminus of a pneumatic system for collecting and conveying the lint from the linting machine to the cotton press, wherein an exhaust fan or fans have the suction side thereof connected to one or more linting machines and the blast side thereof connected to the inlet 13 of our improved machine. The lint-laden air current thus finds its way into the upper chamber 10 and follows the perforated wall 15 to the lint outlet constituted by the channel 14. The separation of the lint from the air current is caused by the correct proportioning and construction of the interior of the machine in relation to the volume and velocity of the current of discharged lint-laden air entering the machine. The surplus air in upper cylinder 10 escapes through air outlet 20 and a considerable percentage of the dust and dirt in the lint is blown through the perforated wall 15 into the dust chamber 16 and is discharged into dust pipe 18. The lint channel 14 also acts as the inlet into the lower cylinder 11, and the lint is blown from the upper cylinder into the lower cylinder through channel 14 where the motion is reversed and the cleaning and separating action is similar to the action in the upper cylinder 10. The lint passes from the lower cylinder 11 into lint flue 12 and the dust and dirt passes out of dust outlet 28 into the dust pipe 18. The regulating damper 19 and its adjustable locking connection 22, 23 and 24 are for the purpose of regulating the air blast from the upper cylinder 10 to the lower cylinder 11. The regulating damper 29 and its adjustable locking connections 30 are for the purpose of regulating the air blast from the lower cylinder 11 into the lint flue 12.

We claim:

1. A cotton lint separating and cleaning apparatus comprising a pair of chambers, one of which is disposed below the other and connected at its upper end to the lower end of the upper chamber, the upper chamber having a cotton lint intake pipe at its upper end and having an outer imperforate wall, an air outlet, and an inner perforate wall spaced from the outer wall and extend-

ing around one side thereof opposite the inlet, said lower chamber having an air outlet and an outer imperforate wall and being provided with an inner perforate wall extending around one side thereof in a plane, the curvature of which is reversed with respect to that of the upper chamber, a dirt and dust discharge pipe having communication with the spaces between the perforate and imperforate walls of the two chambers, and a lint discharge pipe having connection with the lower portion of the lower chamber, all for the purpose described.

2. A cotton lint separating and cleaning apparatus comprising a pair of chambers, one of which is disposed below the other and connected at its upper end to the lower end of the upper chamber, the upper chamber having a cotton lint intake pipe at its upper end and having an outer imperforate wall, an air outlet, and an inner perforate wall spaced from the outer wall and extending around one side thereof opposite the inlet, said lower chamber having an air outlet and an outer imperforate wall and being provided with an inner perforate wall extending around one side thereof in a plane, the curvature of which is reversed with respect to that of the upper chamber, a dirt and dust discharge pipe having communication with the spaces between the perforate and imperforate walls of the upper and lower chambers, and a lint discharge pipe having connection with the lower portion of the lower chamber, and dampers adjustable within the upper and lower chambers respectively adjacent the points of discharge of the cotton lint to the lower chamber and the lint discharge pipe.

3. A cotton lint separating and cleaning apparatus, comprising upper and lower chambers and a communicating channel between the lower portion of the upper chamber and the upper portion of the lower chamber, the upper chamber having an upper lint intake and the lower chamber having a lower lint outlet, each of said chambers having an outer imperforate wall at one side and an inner perforate wall spaced from the imperforate wall to form a dust and dirt passage therebetween, the said perforate walls of the two chambers being curved at opposite sides thereof in relatively opposite directions, and a dust and dirt discharge pipe communicating with the dust and dirt spaces, as described.

4. A cotton lint separating and cleaning apparatus, comprising upper and lower chambers and a communicating channel between the lower portion of the upper chamber and the upper portion of the lower chamber, the upper chamber having an upper lint intake and the lower chamber having a lower lint outlet, each of said chambers having an outer imperforate wall

at one side and an inner perforate wall spaced from the imperforate wall to form a dust and dirt passage therebetween, the said perforate walls of the two chambers being
5 curved at opposite sides thereof in relatively opposite directions, and a dust and dirt discharge pipe communicating with the dust and dirt spaces, said chambers being also provided with air outlets and with means
10 to control the air passing therefrom respectively into the lower chamber and through the lint outlet.

5. A lint separating and cleaning machine comprising upper and lower cleaning chambers of which the latter is reduced in size
15 with respect to the former, said chambers having a connecting channel and provided respectively with means of ingress and egress for the cotton lint, and said chambers
20 having independent air outlets and provided with curved perforate inner baffle

walls extending partly therearound and reversely disposed with respect to one another.

6. A lint separating and cleaning machine 25 consisting of a pair of chambers connected to one another and through which the cotton lint to be cleaned successively passes, one of said chambers having a lint intake and the other of said chambers having a lint
30 outlet, and perforate baffle walls within and extending partly around the said chambers and along which the lint is movable, said baffle walls of the two chambers being
35 curved in relatively opposite directions to reverse the curved plane of movement of the lint to be cleaned, for the purpose described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."