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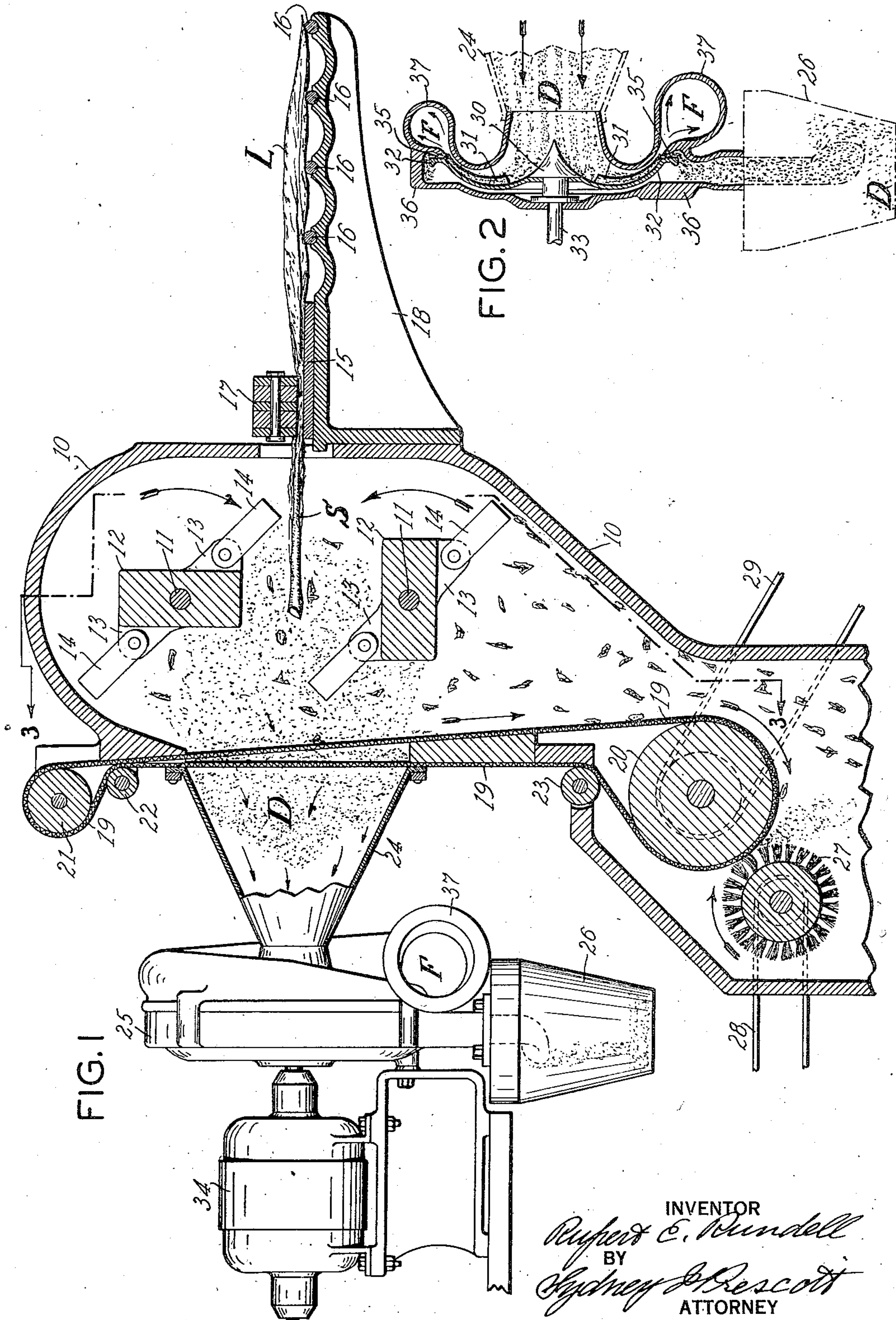
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SCRAP TOBACCO CLEANING MECHANISM

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2 Sheets-Sheet 1



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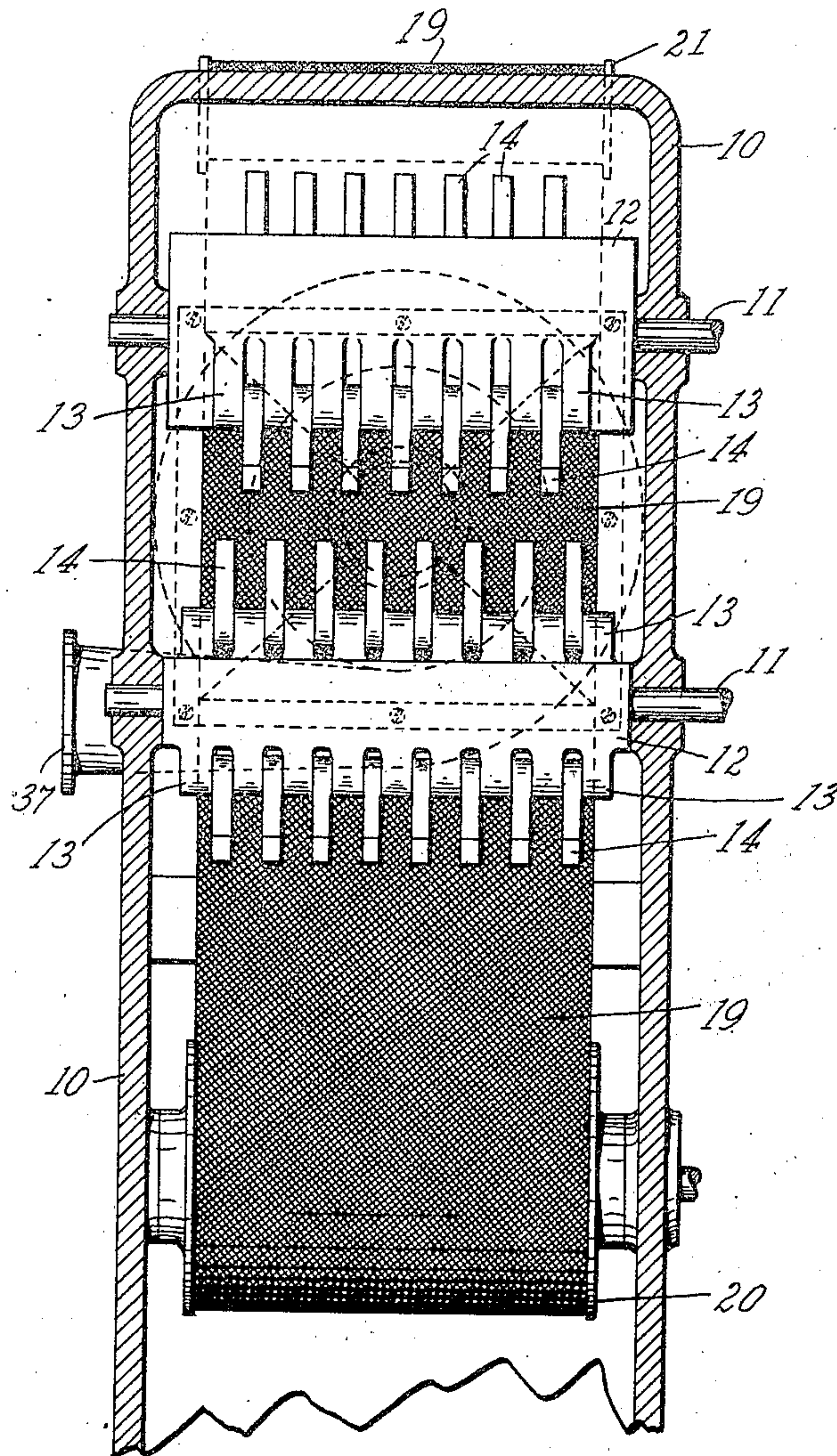
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FIG. 3



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## UNITED STATES PATENT OFFICE

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## SCRAP TOBACCO CLEANING MECHANISM

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8 Claims. (Cl. 131—57)

This invention relates to an improved tobacco cleaning mechanism useful in combination with tobacco stemming machines or other machines in which it is desired to remove dust from tobacco, especially those wherein scrap tobacco is handled or produced.

It is the object of this invention to provide a tobacco cleaning device for such machines which utilizes a new method of dust control and thereby eliminates the use of large pipe systems and air cleaners necessary in most prior constructions for discharging the dust-laden air. With the present arrangement it is unnecessary to blow the air, which still retains a little dust, out into the room or conduct it out through the roof, which latter arrangement is objectionable where the air in the room is conditioned in that it causes a large loss of conditioned air.

In the embodiment illustrating the invention a standard air exhauster and dust precipitator of the "Turbo-Clone" type is shown in connection with the butt threshing element or beater box of a tobacco stemming machine. The dust, which is created during the beating and cleaning of the tobacco leaf stem, is drawn out of the machine through a traveling screen and then deposited in the precipitator and the clean air is expelled therefrom.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings in which like characters of reference indicate the same or like parts:

Fig. 1 is a sectional side elevation of the butt thresher or beater box of a tobacco stemming machine provided with an air exhauster and dust separator;

Fig. 2 is a schematic sectional diagram of the air exhauster and dust separator showing the method of precipitating and collecting the dust; and

Fig. 3 is a sectional front elevation of the butt thresher taken on line 3—3 of Fig. 1.

In carrying the invention into effect there is provided a butt thresher housing having an outlet, a traveling screen covering said outlet, and a dust separator operating to suck dust laden air out of said housing through said screen, whereby the dust is precipitated in said separator and larger tobacco particles are excluded from the separator by said screen. In the best constructions contemplated the separator includes an in-

take communicating with the screened outlet of the housing, a dust collecting chamber, a rotary streamlined disk within said chamber and having its rim slightly spaced from the interior of said chamber to provide an annular opening into said chamber, a scroll-shaped discharge adjacent said chamber, and hyperboloidal blades on said disk operative upon rotation of the disk to draw the dust-laden air through said intake from the screened outlet of the housing and separate the dust from the dust-laden air and deliver the dust into said chamber through the annular opening while delivering the cleaned air to said discharge. The various means and parts may be widely varied in construction for the particular device selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

The butt thresher of the tobacco stemming machine which is enclosed in a housing 10, has the purpose of cleaning the stem butts S of laminae in order to facilitate the seizure of the stem butts by gripping devices (not shown). The butt thresher consists of two oppositely revolving shafts 11 upon which are mounted blocks 12 having a number of lugs 13 in which are pivoted rows of beaters or flails 14. The tobacco leaves L are guided through the thresher by feed belts 15 and 16 and an endless clamping belt 17. Belts 15 and 16 are supported and guided by means of a bracket 18 attached to housing 10. One side of the latter is provided with an outlet over which an endless screen 19 is located. Screen 19 is continuously driven by means of a roller 20 and supported and guided by means of rollers 21, 22 and 23. The screened outlet of the housing 10 communicates with the intake 24 of the exhauster and dust separator 25. The violent action of the beaters 14 upon the stem butts S creates a considerable amount of dust D which ordinarily would mix with the open air in the room unless conducted out through the roof; but the exhauster and dust separator 25 draws the dust-laden air through the traveling screen 19, arrests the dust D in a receptacle 26 and expels the clean air. The heavy particles of tobacco removed from the stems S cannot pass through the screen and therefore fall to the bottom of the butt thresher, which is usually equipped with a removable chamber (not shown). As part of the dust D passing through the screen may stick to the same, a rotary cleaning brush 27 is provided to assure a clean screen at all times. Rotary



brush 27 and roller 20 are driven by means of belts 28 and 29, respectively, from the main drive of the machine.

As shown in Fig. 2, the dust-laden air D is drawn into the exhaustor and dust separator 25 which includes a rotating fan consisting of a cone 30 and a multiplicity of hyperboloidal blades 31 carried by a streamlined disk 32 which is secured to cone 30, the latter being mounted on a shaft 33 driven by a motor 34. The rotation of blades 31 draws the dust laden air from the housing 10, and the dust particles upon entering the exhaustor continue their travel until intercepted by the disk 32 and then follow the curvature of its surface. Lighter particles are intercepted by blades 31 which, due to their shape and rapid motion, cause the particles to be precipitated on their advancing surfaces. The contour of the blades is such that the precipitated dust particles move outward due to the centrifugal force toward the tip of the blade. At the region where the heavier and lighter dust particles converge is a comparatively narrow annular opening 35 between the rim of disk 32 and the interior flange of surrounding annular chamber 36 through which the dust D escapes. The cleaned air F is discharged into the scroll-shaped discharge 37 from which it may be exhausted into the room or re-directed into the butt thresher housing. From the annular collecting chamber 36 the dust is converged by means of a secondary air current maintained by the prolonger tips of the blades 31 into a receptacle 26.

What is claimed is:

1. The combination with a butt thresher of a tobacco stemming machine provided with a housing having an outlet, of a traveling screen covering said outlet, and a dust separator operating to suck dust-laden air out of said housing through said screen, whereby the dust is precipitated in said separator and larger tobacco particles are excluded from the separator by said screen.

2. The combination with a butt thresher of a tobacco stemming machine provided with a housing having an outlet, of an endless traveling screen covering said outlet, a dust separator operating to suck dust-laden air out of said housing through said screen, and a rotary brush for cleaning said screen, whereby the dust is precipitated in said separator and larger tobacco particles are excluded from the separator by said screen.

3. The combination with a tobacco stemming machine butt thresher having a housing provided with an outlet, of an endless traveling screen covering said outlet, a dust separator operating to suck dust-laden air out of said housing through said screen, and a rotary brush for cleaning said screen, whereby the dust is precipitated in said separator and larger particles are excluded from the separator by said screen, said separator including an intake communicating with the screened outlet of the housing, a dust collecting chamber, a rotary streamlined disk within said chamber and having its rim slightly spaced from

the interior of said chamber to provide an annular opening into said chamber, a scroll-shaped discharge adjacent said chamber, and hyperboloidal blades on said disk operative upon rotation of said disk to draw the dust-laden air through said intake from the screened outlet of the housing and separate the dust from the dust-laden air and deliver the dust into said chamber through the annular opening while delivering the clean air to said discharge.

4. In a tobacco leaf treating mechanism, the combination with a housing having an outlet, of means for gripping tobacco leaves and forwarding them with their butts exposed through said housing, means for stripping the blade portions of the leaf from said exposed butts, a screen in said outlet, a suction conduit drawing dust-laden air through said screen, and means co-operating with said screen to remove leaf pieces therefrom.

5. In a tobacco leaf treating mechanism, the combination with a housing having an outlet, of means having opposed traveling surfaces for gripping tobacco leaves and forwarding them side-wise through said housing, beaters in said housing for beating the leaves operating to stir up the dust and dirt thereon, a traveling screen extending across said outlet, and suction means connected to said outlet for drawing the dust stirred up by said beaters from said enclosure through said screen.

6. In a tobacco stemming machine, the combination with a horizontal feed table, of endless traveling supporting means on said table for forwarding tobacco leaves laid side by side thereon with the butt portions extending in one direction, butt stripping means, having stripping elements moving lengthwise of said portions toward the butt ends of the leaves during the stripping operation, a housing enclosing said butt portions having an outlet facing the ends of said butt portions to receive dust thrown by said elements, and suction means arranged to draw the dust through said outlet.

7. In a tobacco stemming machine, the combination with means for forwarding tobacco leaves with their butts extending in the same direction, of butt stripping means acting on said butts, and pneumatic means for separating and separately delivering the dust and the tobacco scraps resulting from the butt stripping operation.

8. In a tobacco stemming machine, the combination with devices for gripping tobacco leaves and forwarding the same side by side, of stripping mechanism for removing leaf portions from the gripped leaves, a housing enclosing said stripping means, and means co-operating with said housing to separately deliver dust and stripped tobacco therefrom, said means including a dust outlet in said housing, suction means communicating with said outlet, and mechanism co-operating with said suction means to separate the stripped tobacco from air and dust drawn through said outlet.

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