

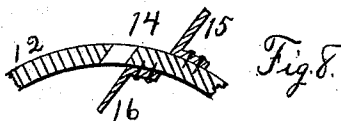
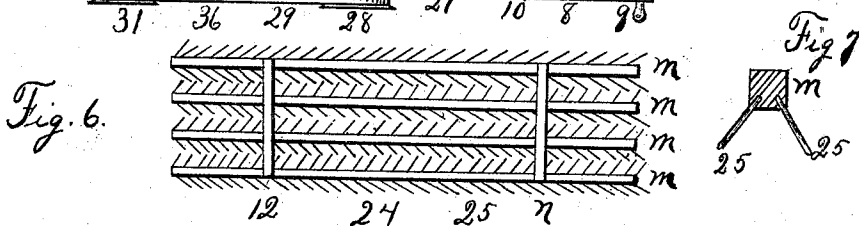
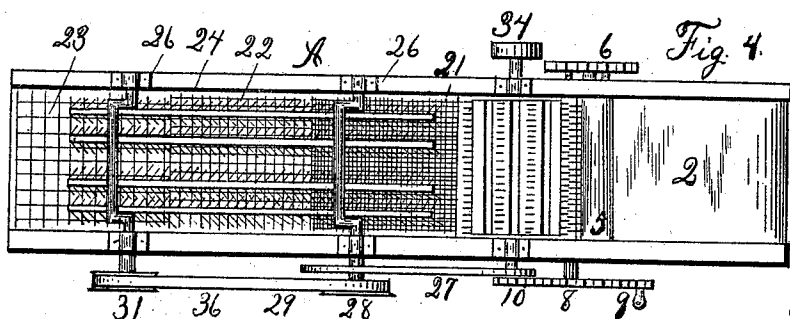
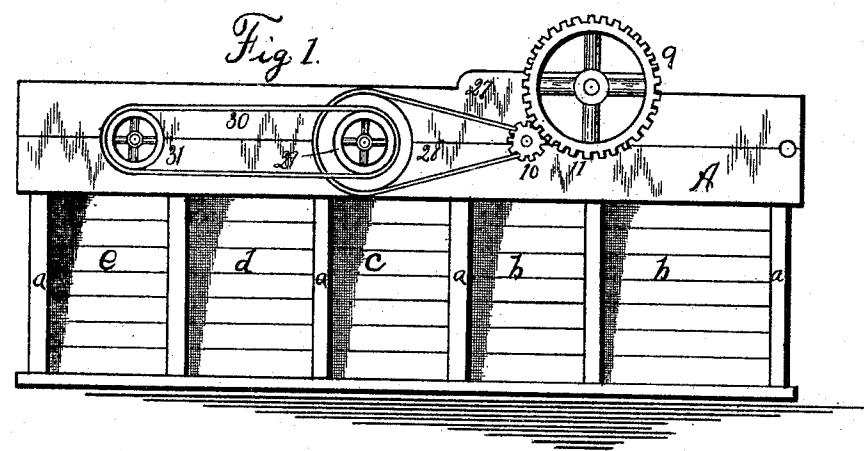
(No Model.)

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J. HAPPICH & J. YOUNG.
TOBACCO GRANULATING MACHINE.

No. 535,134.

Patented Mar. 5, 1895.



WITNESSES:

Chas. W. Marvin
E. S. Borst

INVENTORS
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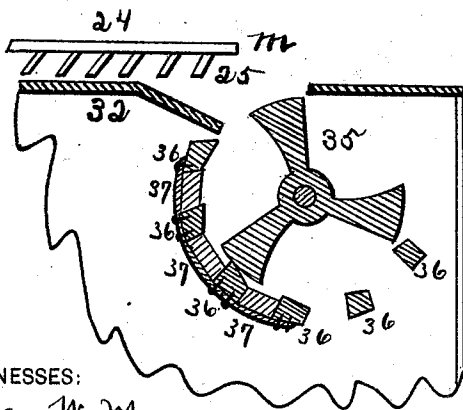
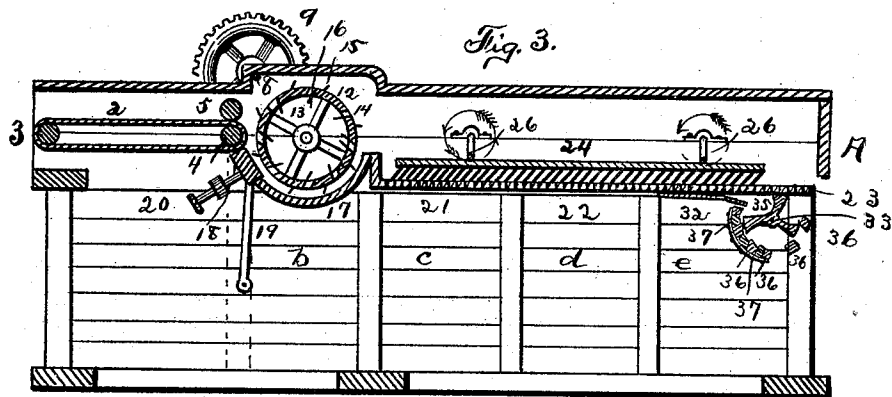
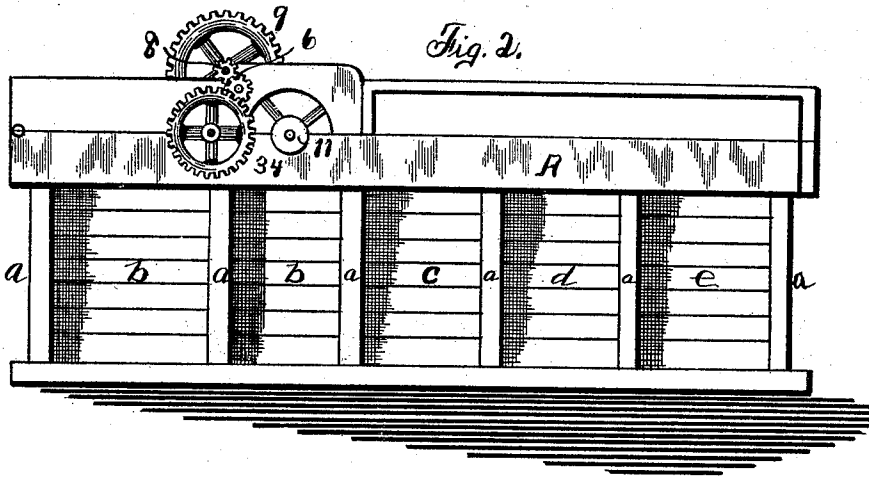
BY

Smith & Hinson
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

JACOB HAPPICH, OF SYRACUSE, AND JOHN YOUMANS, OF CAUGHDENY,
NEW YORK.

TOBACCO-GRANULATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,134, dated March 5, 1895.

Application filed May 25, 1894. Serial No. 512,429. (No model.)

To all whom it may concern:

Be it known that we, JACOB HAPPICH, of Syracuse, in the county of Onondaga, and JOHN YOUMANS, of Caughdeny, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Tobacco-Granulating Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to machines for manufacturing smoking tobacco from the leaf, or from cigar clippings, reducing it to any desired size or degree of fineness, removing the dust, and separating and grading it according to fineness.

Our object is to produce a machine for this purpose, in which the process is continuous; in which the tobacco is fed by rollers, or otherwise, into a chamber in which is a rapidly rotating toothed cylinder, the teeth of which pass between the teeth upon a stationary but adjustable bar, said cylinder having longitudinal slotways, and wings extending inwardly from the rear edge of each slot-way, whereby they blow a strong draft of air out through said slotways, and through the finely perforated bottom of the cylinder chamber, into a proper receptacle, while what does not pass through this, is thrown on to a series of screens, the first one quite fine, the next coarser, and so on, varying in size of mesh; in which the tobacco so shredded is fed over the first screen on to the second and from that to the third and so on, by means of a reciprocating agitator or rake, having inclined teeth, said rake being drawn a certain distance over the screens, then raised, carried back over to the starting point, and then again drawn over the screens, each time agitating, stirring and drawing forward the tobacco over the screens, whereby each screen separates out the particles which are of proper size to pass through it; also providing means whereby the material which is left too coarse can be passed direct from the last screen into and through a chopper or rotary cutter which will reduce it to any desired degree of fineness and comprising a rotating cutter, shear plates spaced apart, and means to close as many of said

spaces as may be desired and thereby vary the grade of fineness of the tobacco.

Our invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1, is a front elevation of the machine. Fig. 2, is a rear elevation thereof. Fig. 3, is a vertical longitudinal section. Fig. 4, is a top plan of the same. Fig. 5, is an enlarged vertical section of part of the rear end, and of the rotary cutting apparatus therein. Fig. 6, is a top plan of the agitator or rake, detached. Fig. 7, is a transverse sectional elevation of one of the longitudinal bars of said agitator. Fig. 8, is a sectional detail of part of the rim of the toothed cylinder and its slotways and wings.

—A— is the bed, suitably supported upon the uprights —a— which are inclosed by ordinary boxing in, and by cross partitions the chamber within the boxing in, is converted into bins as —b—c—d— and —e—, to receive the dust, and the tobacco, as separated and graded. In the front end is a feed-table shown as comprising an endless apron —2— mounted at one end upon a roller —3—, and at the other upon a roller —4— and —5— is a rubber pressure roller above the roller —4—, said rollers —4— and —5— being geared together as at —6—, one of which is secured upon the drive shaft —8— upon which the drive-gear —9— is also secured, meshing with the pinion —10— secured upon the cylinder shaft —11—, and —12— is the cylinder secured thereon, comprising a cylindrical shell or body, supported upon the spiders —13—, and provided with the longitudinal slot-ways —14—, with the outwardly projecting, straight or inclined teeth —15— and with the wings —16— which latter are secured within the cylinder and stand in line with one edge of each slot-way, and operate as fans when the cylinder is being rotated.

The cylinder rotates in a semi-circular and concentric, fine-meshed sieve —17— of substantially the size shown in comparison to the cylinder, and close to the concave —18—

which is also provided with teeth straight or inclined, and so spaced apart that the teeth upon the cylinder will closely intermesh with those of the concave, and pass through between them freely, so that the tobacco, scraps or leaf, fed by the apron and feed rollers to the cylinder, is cut, torn, and shredded by the combined action of the teeth of the cylinder and the concave, and is discharged on to the sieves. Said concave is mounted upon the swinging bars —19—, and is adjustable toward or from the cylinder by means of the hand-screws —20—.

The rotation of the cylinder causes the wings —16— to operate as fans, drawing air in through the ends thereof and blowing it out through the slot-ways and thereby blowing the dust, or substantially all of it through the sieve —17— into the bin —b—.

The material discharged from the cylinder, is first received upon the sieve —21— through which part falls into the bin —c—, and the rest passes on to the coarser sieve —22—, part falling into the bin —d— and the rest passes on to the still coarser sieve —23— and part falls through it, and the remainder can be collected and re-passed through the cylinder or disposed of by reduction of the size of its pieces as hereinafter described.

The tobacco is fed over the first sieve and on to and over the second and on to and over the third by means of an agitator —24— consisting of longitudinal and cross bars —m—, —n—, connecting them, said longitudinal bars being provided with teeth —25—, sometimes straight, but generally inclined substantially as shown, and usually more or less diverging from the bars.

By suitable connections the agitator is mounted upon the cranks —26— which are journaled upon the sides of the bed and above the sides of the sieves, in such manner that when the cranked or central portion is down, the teeth of the agitator will touch the screen, and then as the motion of the cranks continues it is drawn back a short distance, then raised clear of the sieves and the material thereon, and carried forward, and again lowered to the screen again, to again agitate and stir the tobacco and draw it along a short distance over the screen, and thus with the incident stirring and agitation to cause the fine particles to drop through the first screen, gradually shift the remainder from the first sieve to the second, and from that to the third. These cranks are driven to reciprocate this rake by means of a belt —27— driving the pulley —28— and that driving the pulley —29— and through the belt —30— driving the pulley —31—.

The material which is too coarse to pass through the second sieve, is passed on to the third, and the tailings which are too coarse pass over into a suitable receptacle, not shown, whence they can be taken to be again passed through the cylinder to be reduced. By re-

moving said third sieve, the board —32— receives the discharge from the second sieve, being on the same or substantially the same level, and the tobacco is fed into the cutter —33— comprising a shaft driven by a belt from the pulley —34— on the cylinder shaft, spider cutters —35— shear-bars —36— spaced apart and each provided with a cutting or shearing edge, and fillers —37— adapted to be fitted into and close the spaces between the shear-bars, and to regulate the degree of the fineness of the cut, or reduction of the tobacco according to the number of fillers used—the cut and finished tobacco falling into the bin either finished ready to be packed, or to be thrown on to the first sieve to be graded.

It will be seen that the cylinder is provided with a slot and a fan behind each row of teeth to blow out the dust created by each row as it passes through the concave.

The cutter —35— may be either straight or spiral substantially like the cutters of a lawnmower; and may be integral with the arms, or may consist of separate blades screwed or bolted on.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a tobacco machine, a toothed cylinder slotted longitudinally between the rows of teeth and a fan-wing at one edge of each slot, as and for the purposes set forth.

2. In a tobacco machine, a toothed cylinder having longitudinal slots between the rows of teeth, and fan-wings one for each slot, in combination with a toothed concave.

3. In a tobacco machine, a toothed cylinder having longitudinal slots between the rows of teeth, fan-wings, one for each slot, in combination with a toothed concave-plate, and a sieve through which the fans blow.

4. The combination with a disintegrating toothed cylinder, provided with longitudinal slots between the rows of teeth, and a fan-wing adjacent to each slot, a screen receiving the discharge from the concave-plate, and through which the fan-wings blow the dust, a toothed concave plate, a graded series of sieves receiving the discharge from the cylinder, and a reciprocating rake above the sieve to feed the material along over the sieves.

5. The combination with a toothed disintegrating cylinder, and its toothed concave, a series of graded sieves, and a reciprocating rake feeding the material along over the sieves, in combination with a cutting cylinder receiving the material discharged from the last sieve, and means to regulate the degree of reduction of the material by it.

In witness whereof we have hereunto set our hands this 21st day of May, 1894.

JACOB HAPPICH.
JOHN YOUNG.

In presence of—
C. W. SMITH,
M. M. BORST.