A. GRODSKY.

TOBACCO STEMMING MACHINE.

APPLICATION FILED AUG. 2, 1915.

1,225,240.

Patented May 8, 1917.

4 SHEETS—SHEET 1.

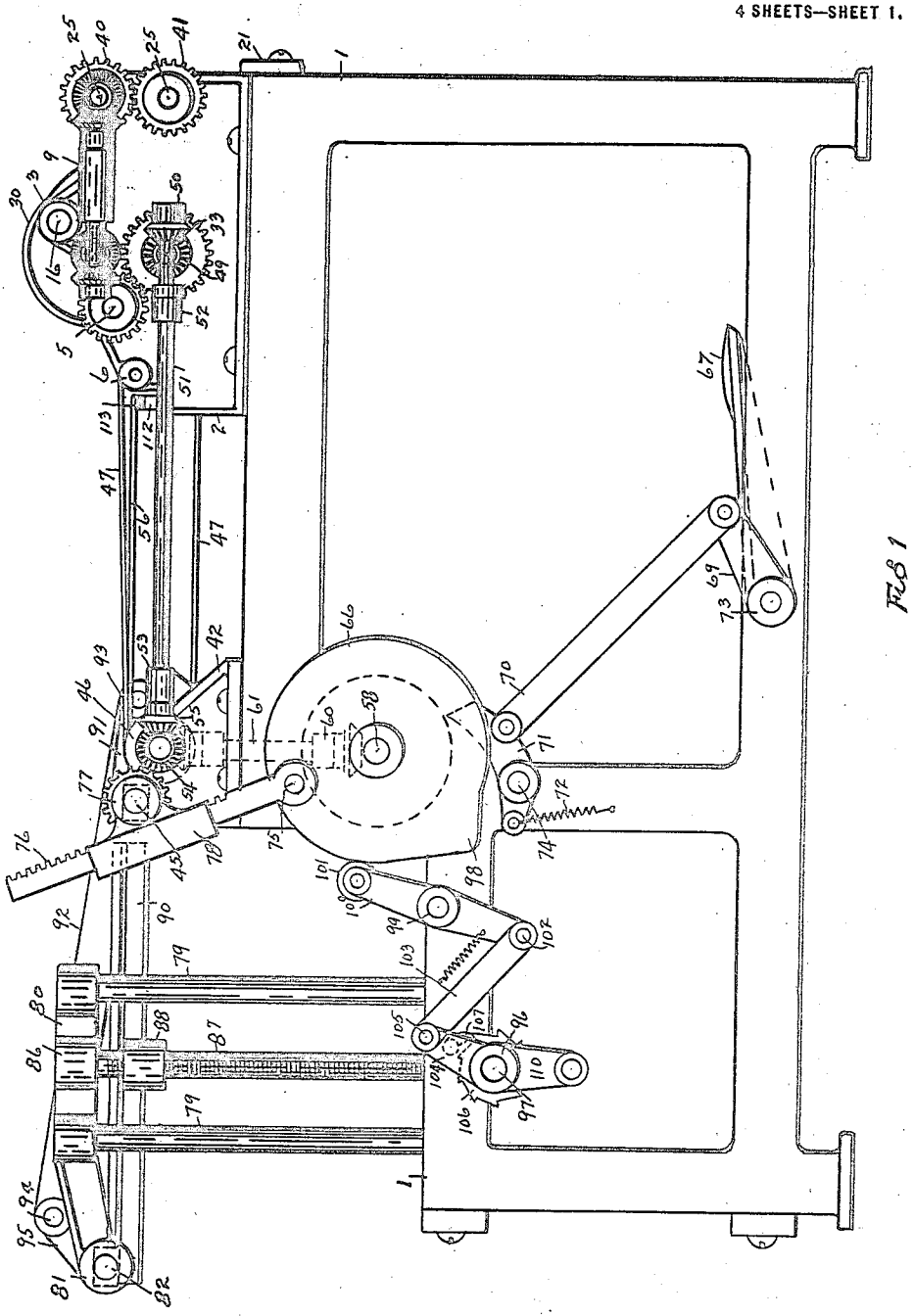


FIG 1

Witnesses
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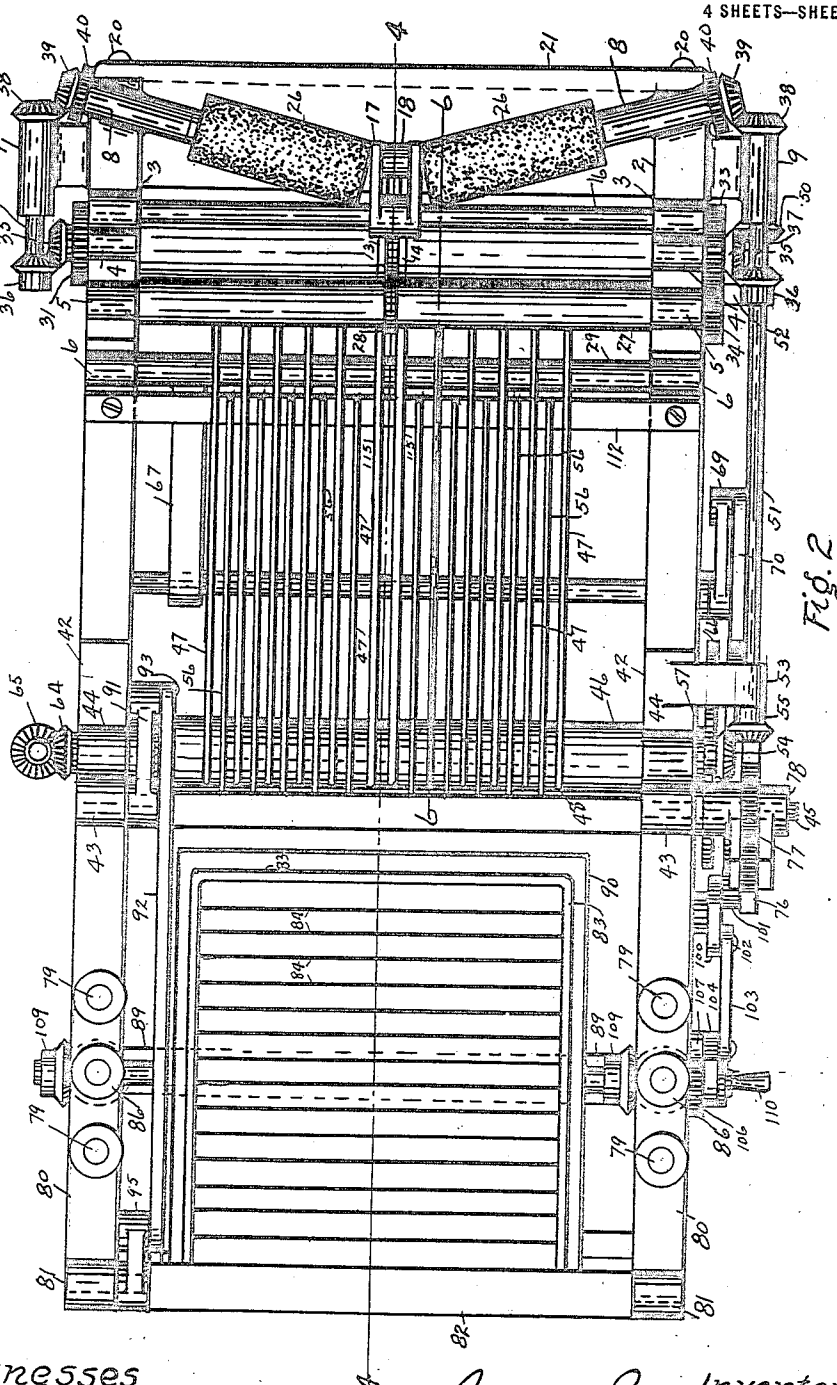


Fig. 2

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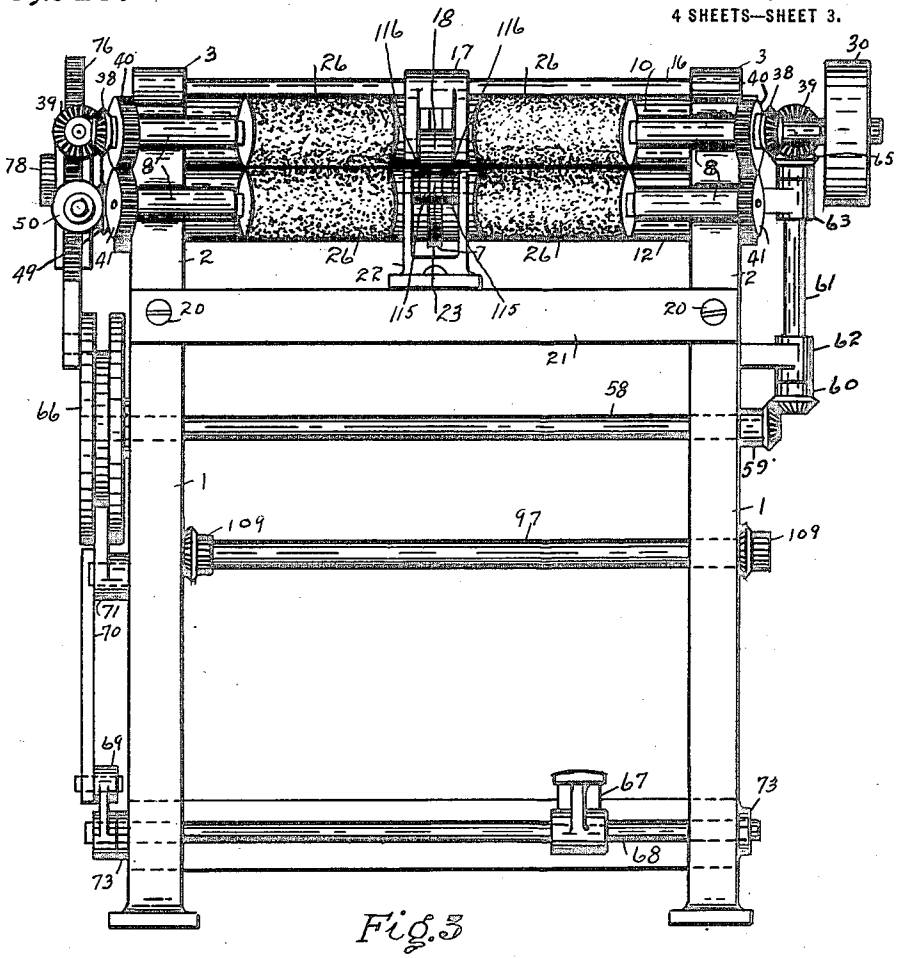


Fig. 3

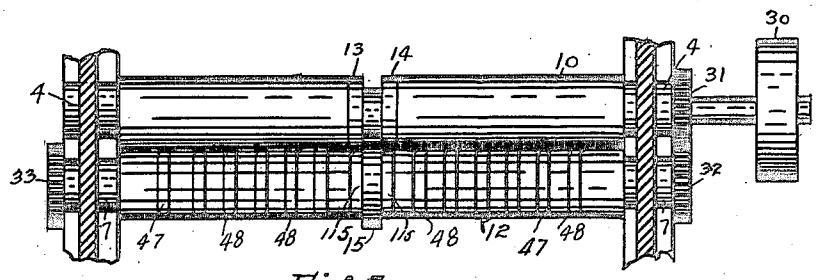


Fig 5

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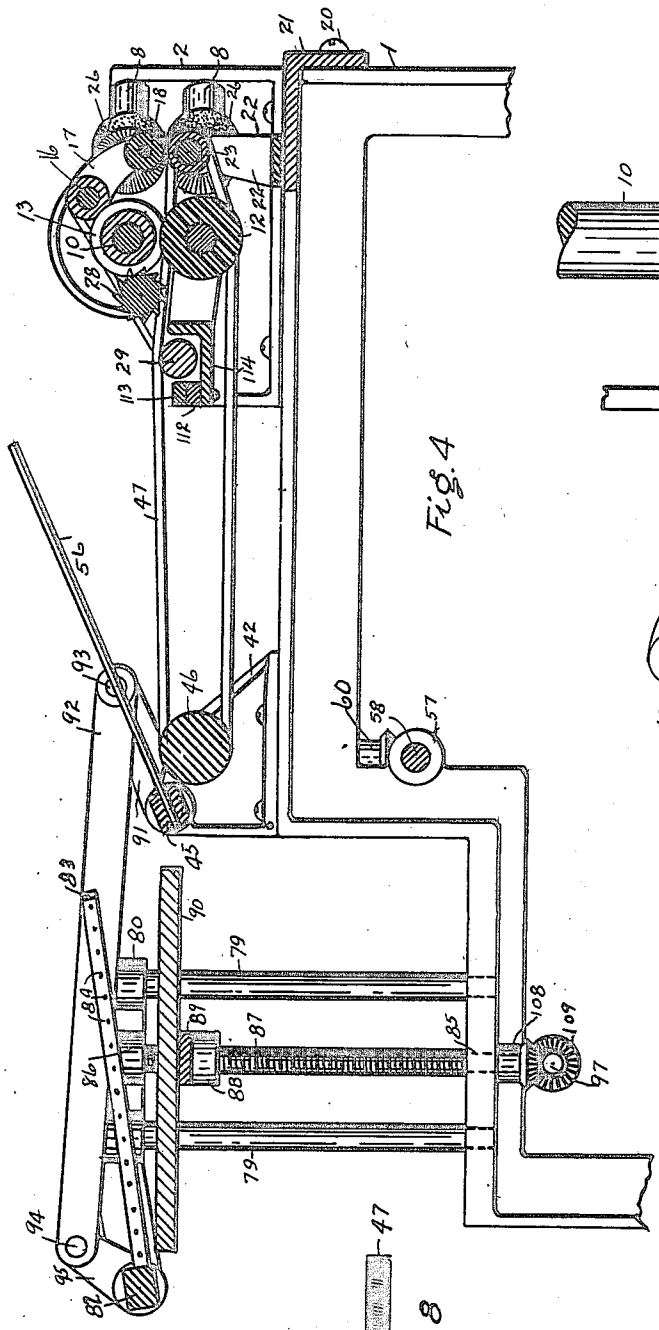


Fig. 4

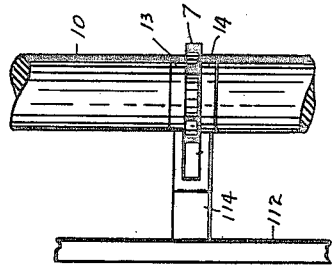


Fig. 7

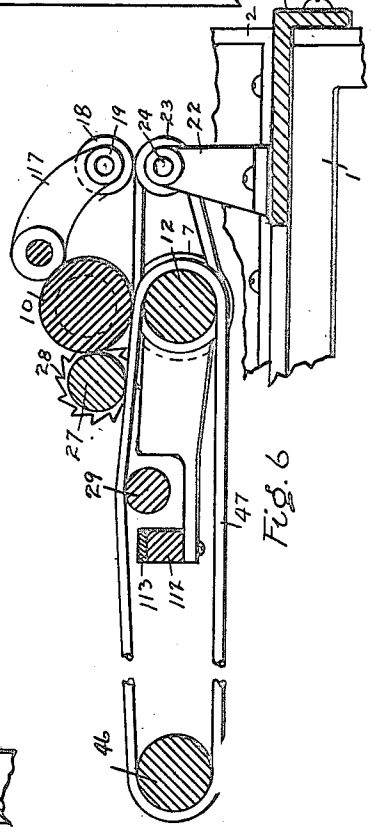


Fig. 6



Fig. 8

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UNITED STATES PATENT OFFICE.

AARON GRODSKY, OF CINCINNATI, OHIO.

TOBACCO-STEMMING MACHINE.

1,225,240. Specification of Letters Patent. Patented May 8, 1917.

Application filed August 2, 1915. Serial No. 43,281.

To all whom it may concern:

Be it known that I, AARON GRODSKY, a citizen of the United States, residing at the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Tobacco-Stemming Machines, of which the following is a specification.

The object of my invention is to produce a simple and highly efficient, dependable and uniformly acting machine, for stemming tobacco, so that the leaves acted upon will all be of the same standard. I have evolved a tobacco stemming machine which simultaneously feeds, brushes and cleans, spreads, straightens out and smooths a tobacco leaf on both sides, at the same time cutting and stripping out its stem; and after the leaf has thus been acted upon, automatically places the leaf upon a pile at a given point and keeps the pile of leaves compressed; the top leaf always being level with the surface of the machine, to keep it in proper operating condition, and the leaves are thus deposited until a large pile or volume of leaves have been operated upon and compressed; the pile of leaves also moving downward as the leaves are successively placed on the top of the pile.

I may state here that my present invention is an improvement on my U. S. Patent No. 933,978.

In the accompanying drawing forming part of this specification,

Figure 1, is a side elevation of the machine,

Fig. 2, is a plan view of Fig. 1,

Fig. 3, is an end view of the machine,

Fig. 4, is a longitudinal section on line 4—4, of Fig. 2, the flies being in partly raised condition,

Fig. 5, is a detailed detached view of the rollers and cutting knives,

Fig. 6, is a longitudinal section on line 6—6, of Fig. 2, partly broken away to illustrate construction,

Fig. 7, is a detail plan view of the stem chute of the machine, and

Fig. 8, is a plan view of a section of the steel spring belt employed by me.

The machine consists of a double frame 1—1, upon which I mount the housings 2—2, carrying the bearings 3, 4, 5, 6, 7, 8 and 9.

In bearings 4 and 7, I mount two cylinders or rollers 10 and 12 which carry the steel upper cutters 13 and 14 and lower cutter 15. The upper cutters are the female cutters and the lower cutter, which is on the lower roller, is the male cutter; the cutter 15 extends up into the female cutters 13 and 14 causing a continuous cutting edge as said cutters rotate or revolve.

In the bearings 3, I place the shaft 16 which carries at the middle, the arm 17, which, at its other end carries the upper feed roller 18, revolving in bearing 19 on said arm 17. Fastened to the frames 1—1, at point 20, I place a base plate 21, which extends forward. At its forward end I fasten the bracket 22 in which I mount the lower feed roller 23, said roller revolving in bearing 24 on bracket 22.

In bearings 8, I mount four shafts 25. At the inner end of these shafts I mount the cylindrical brushes 26, of which there are four. These shafts and their brushes extend diagonally inward as shown in Fig. 2, to a point centrally with the feed rolls 18 and 23.

In bearings 5, I carry a roller 27 extending across the machine and placed so as to come into contact with the roller 10 as shown in Fig. 6. In the middle of the roller 27, I carry the saw toothed stripper wheel 28, shown in Fig. 4. This stripper wheel 28 is larger in diameter than roller 27 and extends into the female cutters 13 and 14 as shown in Fig. 4. The stripper wheel 28 revolves in an opposite direction to the female cutters 13 and 14 and in this operation wheel 28 strips the cut stem from the female cutters.

In the bearings 6, I carry the roller 29, which extends across the machine and its function will be described later.

The parts described are operated as follows, to wit:

On the roller 10 at one of its ends, I place a driving pulley 30, this roller revolving carries a gear 31, see Fig. 5, which meshes with a gear 32, on the lower roller 12, imparting motion to said roller; at the other end of roller 12, I carry the gear 33, which meshes with the gear 34 on roller 27, thus imparting motion to said roller. On roller 10, I also carry the bevel gears 35, which mesh into the bevel gear 36, on shaft 37 thus revolving said shaft in the bearings 9; at the other end of shaft 37, I place the bevel gears 38, which mesh with bevel gears 39 on upper shafts 25 thus revolving said shafts. On bevel gears 39, I place spur gears

40, which gears mesh with gears 41 on said lower shafts 25, thus imparting motion to the upper and lower sets of brushes 26.

This mechanism above described feeds the leaf into the cutters, brushes the leaves on both sides and spreads the leaves outwardly to clean and straighten them, and strips the stem.

At the middle of the frame 1, on each side, I mount housings 42 which carry bearings 43 and 44. In bearings 43, I journal the fly bar 45 and in the bearings 44, I journal the roller 46. This roller carries a series of strands or belts 47 made from coiled spring wire as shown in Fig. 8. They extend forward and pass over the lower roller 12 having grooves 48, shown in Fig. 5, into which they extend so as to be kept in alinement. These grooves are just deep enough to allow the top of the strands 47 to be flush with the circumference of the rollers.

The roller 46 is directly connected to the lower roller 12 and power is transmitted through the bevel gears 49 on roller 12 meshing with gear 50 on shaft 51. Shaft 51 is journaled in the bearing 52 which bearing is connected to the housings 2. In the housings 42, I carry the bearing 53 which is the other journal for shaft 51. On roller 46, I place the bevel gear 54, which meshes with the bevel gear 55 fastened to end of shaft 51.

In the fly bar 45, I fasten the fly sticks 56, which, with the fly bar, make the delivery fly. These fly sticks are placed so as to lie between the coiled spring strands 47 alternately, as shown in Fig. 2, and pass slightly below them.

The roller 29 above referred to is placed so as to raise or hold the wires 47 up, as shown in Fig. 4, to allow the fly sticks to come below the wires 47.

The fly oscillates in a half circle and in order to get this oscillating motion, I use the following means: In frame 1, each side, I carry bearings 57, and through these bearings I revolve shaft 58 by reason of the miter gear 59 on shaft 58 meshing with gear 60 on vertical shaft 61, as shown in Fig. 3; on one side of frame 1, I carry journal bearing 62 and on one side of the housing 42, I carry the journal bearing 63. At the outer end of roller 46, I have the bevel gear 64 as shown in Fig. 2 and meshing with said bevel gear I provide the bevel gear 65 and this gear is connected to vertical shaft 61. Thus the revolving of the roller 46 gives power to shaft 58. At the extreme end of shaft 58 I connect a clutch mechanism 66, of ordinary construction which is operated by foot treadle 67, shaft 68, arm 69, link 70, finger 71 and spring 72. The shaft 68 is journaled in frame 1 at bearings 73 and the finger 71 is fulcrumed at point 74 on frame 1.

At point 75 on clutch 66, I pivotally connect the sliding rack 76, which meshes with the spur gear 77 on the fly bar 45. The gear 77 and rack 76 are incased and held in mesh by means of a housing 78. Said housing is fulcrumed on fly bar 45; the housing 78 is so made as to allow the rack 76 to slide through same, thus holding the rack 76 and gear 77 in mesh during the operation of the clutch 66. This clutch makes a revolution as the treadle 67 descends and through the mechanism just described forces the delivery fly to operate or oscillate in a half circle, and deliver the leaf onto a board 90 to which I will now refer.

At the rear end of frame 1, I carry the four standards 79 fastened at the bottom ends to the frame 1; at the upper ends of the standards 79, I connect the arms 80—80, and at the outer ends of arms 80—80, I place the journals 81. Through the journals 81, I operate another fly bar 82 to which I connect the steel fly frame 83. Extending crosswise of this frame I fasten wires 84 thus constructing a complete pressure fly.

Journaled in the frame 1, both sides, at the points 85, and at the bearings 86 in arms 80, I place a vertical screw 87; operating upon the screw I have nuts 88 directly connected by means of a bar 89 which extends across the machine. Fastened to bar 89, I provide a board 90 onto which the tobacco is finally placed.

The fly just described above is a pressure fly, the other fly which makes the half circle is the delivery fly. The pressure fly is operated as follows: To the fly bar 45, I connect the arm 91. On the end of arm 91, I fasten link 92 at the point 93 and at the other end of link 92 at point 94, I connect the arm 95 which is fastened to the bar 82, thus it will be seen that when power is applied to bar 45 the same power will be applied to bar 82, thus operating the pressure fly and by this means raising and lowering it.

I will now describe the operation and movements of the board 90. In the frame 1, at each side, I carry two bearings 96 and through these bearings I revolve shaft 97 by the following means. On the outside face of the clutch mechanism 66 I have the cam nose 98. On frame 1 at point 99, I pivotally connect the lever 100, at the upper end of which I carry a roller 101 which revolves against the face and over the cam nose 98 of clutch 66. At the lower end of lever 100 at point 102, I connect a link 103, which in turn is connected to the arm 104, at point 105, said arm 104 oscillates on shaft 97. On shaft 97 I fasten the ratchet toothed wheel 106 and on the arm 104, I pivotally connect a ratchet pawl 107, which meshes with ratched wheel 106. Shaft 97 extends across the machine and carries at each end

a set of bevel gears. On the screws 87, at their bottom ends I connect the bevel gears 108 which mesh with the bevel gears 109 on the shaft 97; thus it will be seen that when the clutch mechanism 66 with its nose 98 revolves, it will rock the arm 100 thus giving an oscillating motion and drive the shaft 97, and through the bevel gears described impart intermittent motion to the screws 87 and thus lower the board 90. After the board 90 has descended to its lowest position, the pawl 107 is disconnected from the ratchet wheel 106 and the handle 110, which is fastened to shaft 97, is used for driving the screw in the opposite direction thus raising the board back to the highest position, after the tobacco has been removed.

I will now describe the stripper chute and the mechanism connected therewith. On the housings 2, I fasten a bar 112 and on its upper side I place a piece of rubber 113 upon which the delivery fly rests at the end of its stroke. At the lower side of bar 112 and at its middle, I connect the stem chute 114 (see Fig. 4), and the stem chute is so constructed that it will bridge the lower male cutter 15 as shown in Fig. 7. This construction is made to force the stem, after it is cut from the leaf, to start downward and fall under the machine.

The cutters, stripping wheel and rollers operate in the direction indicated by the arrows in the drawing. In order to assist in feeding the tobacco leaves to the cutters 13, 14 and 15, I provide two bands or tapes 115, which extend from the lower feed roller 23 and over the same to and over the roller 12, extending backward and running over roller 46. The tapes 115 pass into recesses 116 in the lower feed roller 23, see Figs. 3, 4 and 6.

In operating the machine, the tobacco leaf is fed into the feed rollers 18 and 23 and moves forward and is supported on the two tapes 115, the stem of the leaf lying between said tapes, the upper feed roller holding it down in position; as soon as the leaf has thus entered into the feed rollers the diagonally disposed sets of brushes commence brushing and straightening out, cleaning and smoothing the leaf on both sides and also forwardly and laterally from each side of the stem; as this operation is going on the leaf reaches the cutters 13, 14 and 15 and they commence cutting the stem from the leaf and the stripper wheel 28 is forcing the stem, as it is being cut out of the leaf into the chute 114, and this operation continues as above set forth until the leaf has passed through onto the endless apron made up of the strands 47, and when it reaches the proper point in its travel on the endless apron, the delivery fly operates and rises, carrying the acted upon leaf over onto the pile of leaves on the board 90, placing it on top of the leaf which has just previously been carried over; and during this delivery of the leaf by the delivery fly, the pressure fly has raised up to allow such leaf to be delivered and as soon as the leaf is delivered and the delivery fly oscillates and moves backward into its normal position, the pressure fly comes down and presses gently against the leaves and holds them in the desired level and uniform position required, after the delivery of each leaf; the board 90 with its leaves is lowering on the screws 88, and continuing its descent as leaf after leaf is delivered until it has reached its lower limit; at this point the leaves can be removed, the board run upward as heretofore described and the leaves can be piled up again. Of course it will be understood that as the leaves are being thus delivered and pressed, the operator is pressing down the treadle 67 at the proper time.

The brushes being cylindrical and double on each side, and diagonally disposed running inward to a common point, enable me to brush, clean, spread and smooth the leaves at both top and bottom and on each side of the stem, both forwardly and laterally.

The feeding tapes 115 operating to carry and support the leaf on its inward journey with the stem of the leaf disposed between them is a unique, novel and highly efficient means enabling me to quickly, uniformly and clearly cut the stem from the leaf, and the stripper wheel acting in unison with the cutters to strip said stem from the leaf, leaves the edges where the stem has been removed, in a clean cut condition.

The endless apron upon which the leaves travel to be received by the delivery fly being made of partially yielding strands, this apron will always be in the same uniform condition and not affected by the elements.

From the above description it will be seen that the improved machine for stripping tobacco, constructed according to my invention is of an inexpensive and extremely simple nature and is especially well adapted for the purpose for which it is designed, and it will also be obvious from the above description that the machine is capable of considerable modification without material departure from the principle and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts of the machine as herein set forth in carrying out my invention in practice.

What I claim as new and my invention and desire to secure by Letters Patent is:

1. In a machine for stemming tobacco, oppositely disposed cylindrical brushes operating diagonally from a common center to brush, straighten out, clean and smooth a tobacco leaf forward and laterally, on each side of the stem on both sides of the leaf simultaneously, and means for cutting and

removing the stem from said tobacco leaf, an endless apron suitably supported, a delivery fly, said apron carrying the acted upon leaf to said delivery fly, a pressure fly, the delivery fly delivering the leaf under said pressure fly while said pressure fly is elevated and means for moving the pressure fly down upon the leaves as they are delivered.

2. In a machine for stemming tobacco, oppositely disposed cylindrical brushes operating diagonally from a common center to brush, straighten out, clean and smooth a tobacco leaf forward and laterally, on each side of the stem on both sides of the leaf simultaneously, and means for cutting and removing the stem from said tobacco leaf, an endless apron suitably supported, a delivery fly, said apron carrying the acted upon leaf to said delivery fly, a pressure fly, the delivery fly delivering the leaf under said pressure fly while said pressure fly is elevated and means for moving the pressure fly down upon the leaves as they are delivered.

3. In a machine for stemming tobacco, mechanism for brushing and cleaning the leaf, means for cutting and removing the stem from said tobacco leaf, a delivery fly, means for delivering the cleaned leaf to said delivery fly, a pressure fly, the delivery fly delivering the leaf under said pressure fly while said pressure fly is elevated and means for moving the pressure fly down upon the leaves as they are delivered.

Executed by said AARON GRODSKY this 29th day of July, 1915, at Cincinnati, Ohio.

AARON GRODSKY.

Witnesses:
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H. E. CARSTENS.