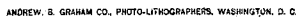


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4 SHEETS--SHEET 1.



F. K. HEUPEL.  
TOBACCO STEMMING MACHINE.  
APPLICATION FILED APR. 16, 1909.

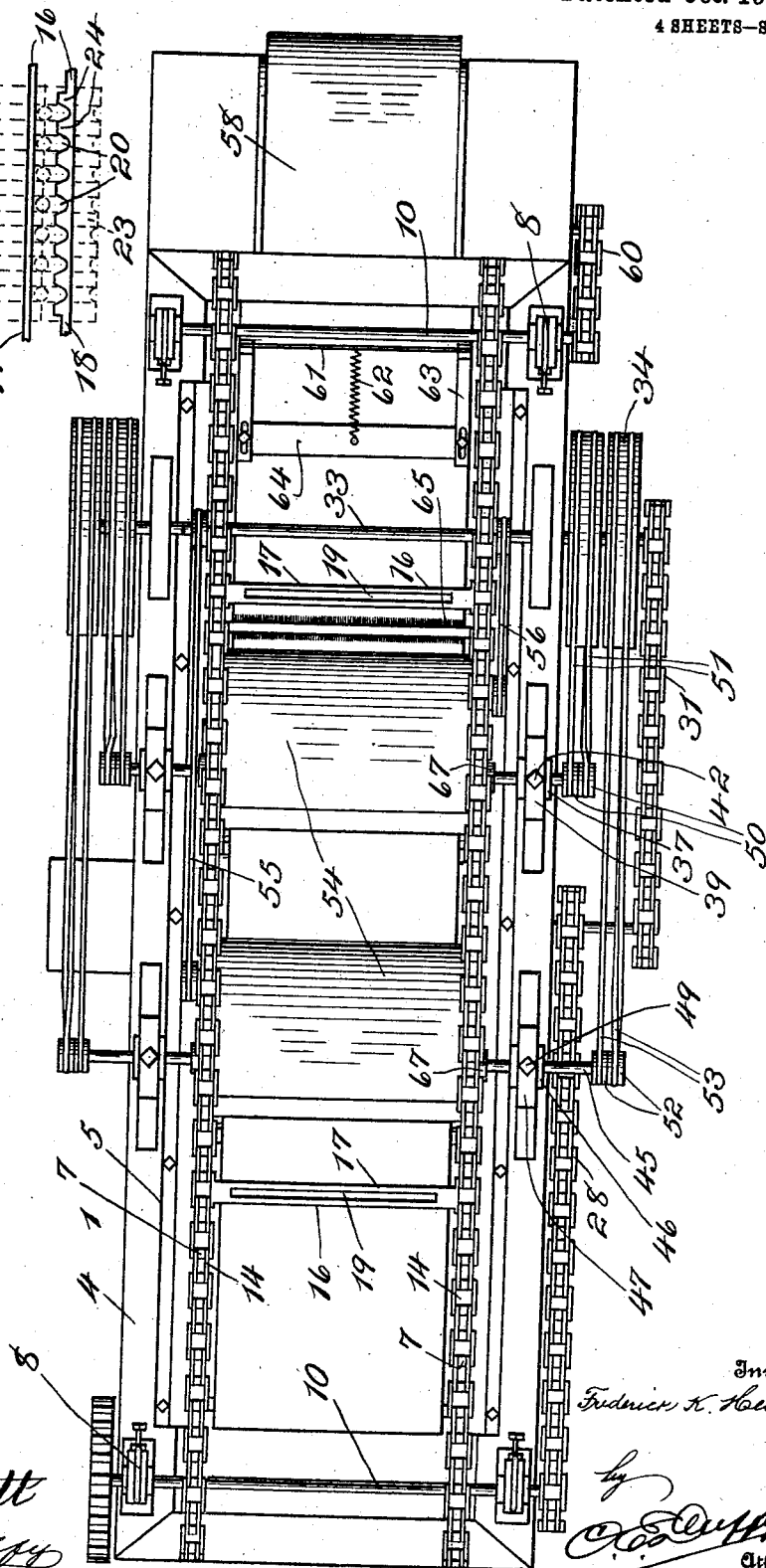
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Patented Oct. 19, 1909.

4 SHEETS—SHEET 2.

Fig. 9.

Fig. 2.



Witnesses

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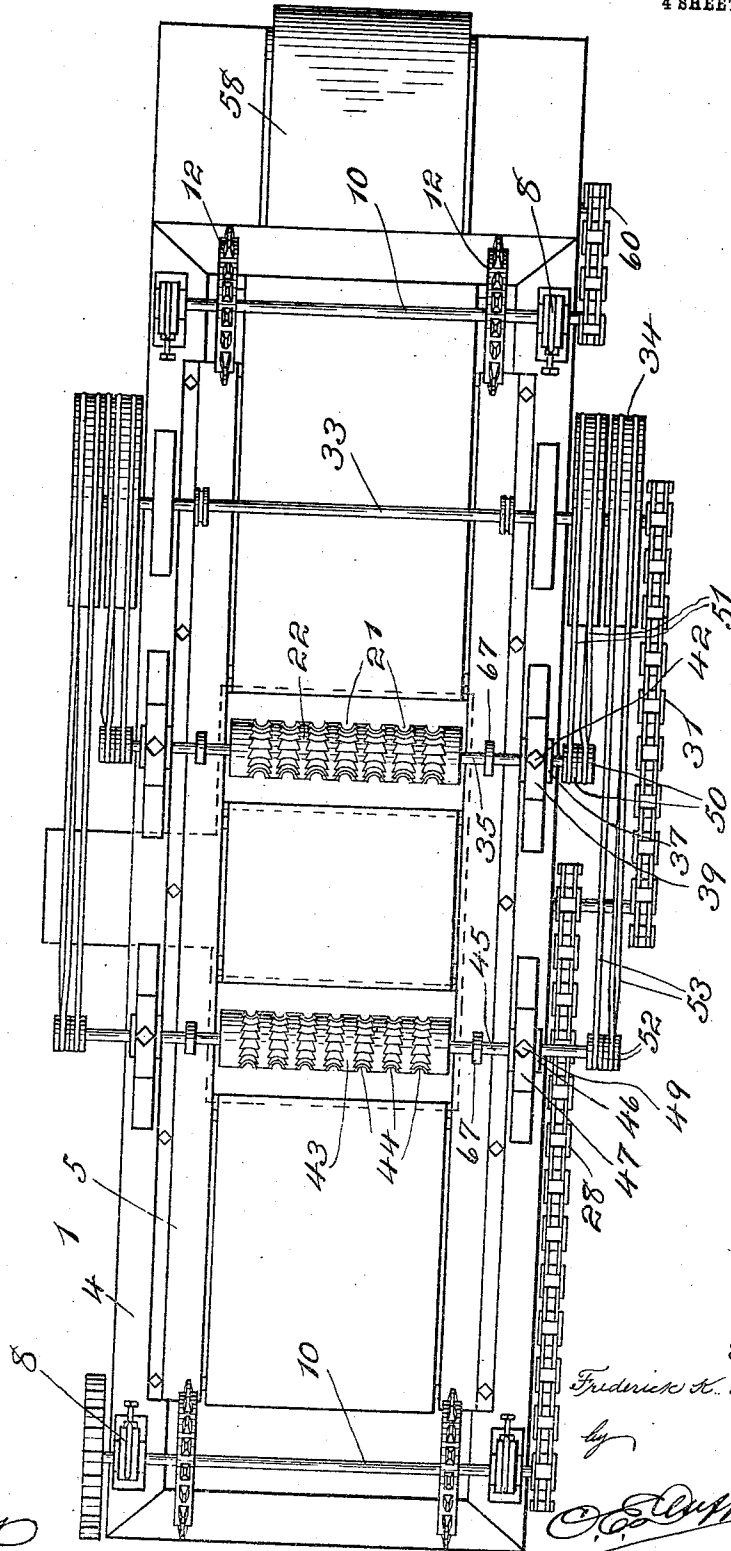
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4 SHEETS—SHEET 3.

*Fig. 3.*



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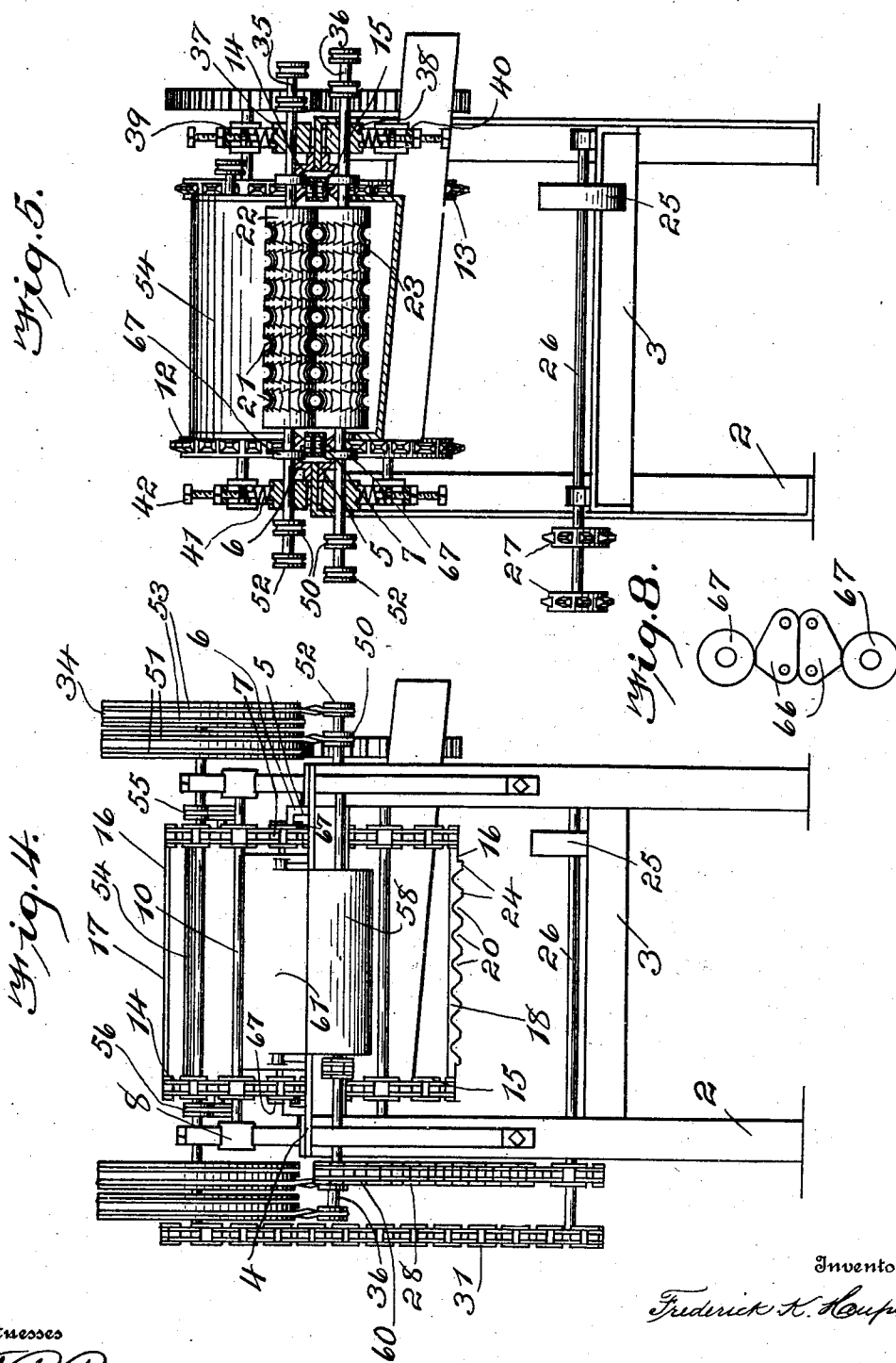
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4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

FREDERICK K. HEUPEL, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF TO ISAAC B. NORDLINGER, OF WASHINGTON, DISTRICT OF COLUMBIA.

## TOBACCO-STEMMING MACHINE.

937,602.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed April 16, 1909. Serial No. 490,346.

*To all whom it may concern:*

Be it known that I, FREDERICK K. HEUPEL, citizen of the District of Columbia, residing at 2 Sixth street northeast, in the city of Washington, District of Columbia, have invented certain new and useful Improvements in Tobacco-Stemming Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to tobacco stemming machines and has for its object to provide a machine for stemming or stripping tobacco in such manner that the entire leaf is stripped from the stem.

A further object of my invention is to provide a tobacco stemming machine employing a novel construction of grippers for gripping the leaves to lead the same to the stemming rollers.

A further object of my invention is to provide a plurality of stemming rollers in order to further insure a clean stripping of the same.

A further object of my invention is to provide a novel means for separating the stemming rollers in order to allow the grippers to pass thereunder.

A further object of my invention is to provide a tobacco stemming machine which is particularly simple in construction, cheap and easy to manufacture, strong, durable and efficient.

With these objects in view my invention consists in the novel construction of the grippers.

My invention further consists in the novel construction and arrangement of the fan for rotating the leaf while it is being stemmed.

My invention further consists in the novel construction for separating the stemming rollers while the grippers are passing thereunder; and my invention further consists in certain other novel details of construction and in combinations of parts all of which will be first fully described and afterward specifically pointed out in the appended claims.

Referring to the accompanying drawings: Figure 1 is a side elevation of a tobacco

stemming machine constructed in accordance with my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a plan view of the table showing the stemming rollers in plan. Fig. 4 is a front elevation of the machine. Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 3. Fig. 6 is a fragmentary view of the gate and brush. Fig. 7 is a sectional view through the grippers and stemming rollers. Fig. 8 is a fragmentary view showing one of the chain cams in the act of separating the stemming rollers, and Fig. 9 is an elevation of the grippers in the act of closing and illustrating the stemming rollers in dotted lines.

Like numerals of reference indicate the same parts throughout the several figures in which;

1 indicates the machine which, as shown in Fig. 1, comprises the upright standards 2 and the horizontal frame pieces 3. Carried on the standards 2, as shown in Fig. 1, is the table 4, said table being provided on each side with two longitudinal tracks 5 each having a vertical wall 6 upon which the rollers 7 of the chains operate as clearly shown in Fig. 5.

Referring to Fig. 1 it will be seen that suitable adjustable boxings 8 and 9 are provided at the forward and rear corners of the machine, said boxings carrying transverse shafts 10 and 11 upon which are mounted the upper sprocket wheels 12 and the lower sprocket wheels 13.

As will appear from Fig. 1 the upper sprocket wheels 12 are mounted above the plane of the table 4 while the lower sprocket wheels are mounted below the plane of the table 4. Carried on the upper sprocket wheels 12 is a sprocket chain 14 while an identical chain 15 is carried on the lower sprocket wheels 13. Arranged on said sprocket chains 14 and 15 at regular intervals are the grippers 16 (Fig. 2); said grippers 16 comprising an upper gripping bar 17 and a lower gripping bar 18, the upper gripping bar 17 being provided with a slot 19 longitudinally thereof and extending nearly the entire length of the gripping bar 17; while the lower gripping bars 18 are provided with a series of grooves 20 transversely of said bars, said grooves 20 registering with the grooves 21 in the gripping rollers 22 and 23. It will also appear from the drawings that the sprocket chains 14

and 15 extend to the ends of the table 4 and the lower chain 15 passes along the table rolling on the lower track 5, while the upper sprocket chain 14 passes along the table 4 rolling under the upper track 5. The grippers 16 being arranged at regular intervals on the sprocket chains 14 and 15 meet at the forward end of the table and as the chains pass along the said table said chains engage the tracks 5 on the table causing the chains to come together and causing the gripping bars 17 and 18 to tightly engage each other as shown in Fig. 7, the upper portions 24 of the grooves 20 in the lower gripping bars 18 entering the slots 19 in the upper gripping bars 17.

Referring again to Fig. 1 it will be seen that the drive pulley 25 is located about midway of the machine, said pulley being on a shaft 26. Arranged on the shaft 26 are two sprocket wheels 27 over which passes a sprocket chain 28 to a sprocket 29 arranged on the shaft 30 of the lower rear sprocket wheels 13 and passing over one of said sprocket wheels 27 is a sprocket chain 31 passing to a sprocket wheel 32 on a shaft 33 upon which is mounted a driving drum 34. 22 and 23 indicate the forward stemming rollers which are mounted on shafts 35 and 36, said shafts being journaled in boxings 37 and 38 secured in the brackets 39 and 40, said boxings 37 and 38 being slidable within the brackets 39 and 40 and held in their normal position by means of coil springs 41, the tension of said springs 41 being adjustable by means of the threaded adjusting bolts 42.

43 (Fig. 3) indicates the rear stemming rollers which are provided with grooves, 44 and as will appear from Fig. 3 said grooves 44 are shallower and are closer together than the grooves 21 in the forward stemming rollers 22 and 23. Said rear stemming rollers 43 are mounted on shafts 45 journaled in suitable boxings 46 secured in brackets 47 and slidable therein, said boxings being held in their normal position by means of the springs 48 the tension of which is adjusted by means of the threaded adjusting bolts or screws 49. Carried on each end of the shafts 35 and 36 of the forward stemming rollers are two pulley wheels 50 which pulley wheels 50 are belted to the driving drum 34 by means of belts 51; and as will appear from Fig. 2 a driving drum 34 is arranged on each side of the machine; and as will appear from Fig. 1 the lower pulley 50 on the lower shaft 36 of the lower forward stemming roller 23 is driven in a direction reverse to that of the upper pulley 50 of the upper shaft 35 of the upper stemming roller 22. The shafts 45 of the rear stemming rollers 43 carry on each end thereof a pulley wheel 52 which are belted by means of belts 53 to the driving drums 34 in such manner

that the rear stemming rollers are driven in opposite directions. Arranged over the stemming rollers are fans 54, said fans being driven by means of the belts 55 and 56 from the shaft 33 of the driving drums 34.

As will appear from Fig. 1 an on-bearing table 57 is provided on the forward end of the machine upon which is arranged an apron 58 carried on drums 59, said drums being driven by a sprocket chain 60 from the shaft of the lower forward sprockets 13.

Referring now to Figs. 2 and 6 it will be seen that at the forward end of the machine I provide a pivoted gate 61 which is normally held in a vertical position by means of a spring 62, said gate being pivoted to supports 63 which are longitudinally adjustable on the transverse strap 64 as clearly shown in Fig. 2; and referring to Fig. 6 it will be seen that just in rear of the gate 61 I provide a brush 65 transversely of the machine for the purpose of brushing the tobacco leaves as they pass to the forward stemming rollers.

Referring now to Fig. 1 and Fig. 8 it will be seen that both the upper and lower sprocket chains 14 and 15 are provided with a series of cams 66, said cams 66 being arranged on said chains at the same points that the upper and lower gripping bars 17 and 18 are secured. It will also be seen from Fig. 3 that the shafts of the forward and rear stemming rollers are provided on each side of the rollers with a small roller 67 directly in the path of the upper and lower chains 14 and 15 and in the path of the cams 66 in such manner that said cams 66 strike the rollers 67 and separate the same, thus separating the stemming rollers and allowing the grippers 16 to pass thereunder.

As will appear from Fig. 7 the gripping bars 17 and 18 are tapered transversely in such manner that the stemming rollers engage the leaf as soon as the grippers have passed under the same, this construction causing the entire leaf to be engaged and stripped by the stripping rollers.

Having thus described the several parts of my invention its operation is as follows: The leaves to be stemmed are placed on the on-bearing apron 58 and as said apron feeds the leaves toward the machine said leaves are carried into engagement with the gate 61 and are held thereby against movement. As the gripping bars 17 and 18 meet in front of the gate 61 said gripping bars engage the stem of the leaf and as they pass rearwardly they strike against the gate 61 and raise the same allowing the leaf to be carried therethrough. The spring 62 immediately causes the gate to assume its normal position and the succeeding leaves are held thereby until the next pair of gripping bars engage the same and carry them through the gate. As the leaves are carried toward the

stemming rollers they are passed under the brush 65 which effectually brushes the leaf and as the cams 66 on the chains 14 and 15 engage the rollers 67 on the shafts of the forward stemming rollers said rollers are separated and the gripping bars 17 and 18 pass freely under the same. By reason, however of the particular form of the cam 66 and gripping bars 17 and 18 the rollers engage the leaf immediately the gripping bars have passed between the rollers, and as said rollers are being driven in the direction opposite to the direction of the travel of the leaf and as said rollers are provided with a series of cuts or serrations formed longitudinally of the rollers, said rollers strip the leaf from the stem. As before described the lower gripping bar 18 is provided with a series of grooves 20 transversely of the said gripping bar and the stems of the leaves are engaged by said gripping bar and are held within the grooves 20. As these grooves register with the grooves 21 of the forward stemming rollers said stems are carried within the grooves 21 of the stemming rollers in such manner that the danger of mashing and cutting the stem by the stemming rollers is entirely obviated. After the stem has passed under or through the forward rollers it continues on its rearward travel and the cams 66 separate the rear rollers 43 allowing the gripping bars to pass between the same, after which the said rear rollers 43 engage and restrip the stem; that is to say, the rear rollers strip any remaining portion of the leaf which might be left on the stem, and as is obvious any number of similar rollers can be employed although I have found by experience that two sets of rollers will stem the leaf in a clean and efficient manner.

As the leaf is being carried between the rollers the fans 44 and 45 direct a blast of air on the leaves causing them to rotate in such manner that a clean stemming of the leaves by the rollers is greatly facilitated. The stems are carried rearwardly by the gripping bars and the leaves are blown by the fans 44 and 45 through the table and into the chute 68.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A tobacco stemming machine comprising suitable stripping rollers provided with a series of grooves transversely of the same, sprocket chains associated with said rollers, grippers on said sprocket chains, said grippers being provided with means for causing the stems of the leaves to register with the said grooves in the said rollers, and means for separating the rollers to allow the grippers to pass between the same.

2. A tobacco stemming machine comprising suitable stripping rollers, said stripping

rollers being provided with a series of grooves transversely of the said rollers, sprocket chains associated with said rollers, grippers carried on said sprocket chains, one bar of said grippers being provided with a series of grooves transversely of the same and registering with the transverse grooves on the said rollers.

3. A tobacco stemming machine comprising suitable stripping rollers provided with a series of grooves transverse of the said rollers, grippers for gripping the leaves to be stemmed and for conveying the same to the stripping rollers, means on said grippers for leading the stems of the leaves to the said transverse grooves in the said rollers in such manner that the stems will register with the said grooves, and means for separating the rollers to allow the grippers to pass between the same.

4. A tobacco stemming machine comprising suitable stripping rollers provided with a series of grooves transversely of the said rollers, grippers for conveying the leaves to be stripped to the said stripping rollers, said grippers being provided with means for causing the stems of the leaves to register with the said transverse grooves on the said stripping rollers, and means for separating the rollers to allow the grippers to pass between the same.

5. A tobacco stemming machine comprising suitable stripping rollers, grippers for gripping the leaves to be stemmed and for conveying the same to the stripping rollers, one of said grippers being provided with a series of grooves transversely of the said gripper, said grooves being arranged to receive the stems of the leaves, and means for separating the rollers to allow the grippers to pass between the same.

6. A tobacco stemming machine comprising suitable stripping rollers, grippers for gripping the stems of the leaves to be stripped and for conveying the same to the stripping rollers, means for separating the said rollers to allow the grippers to pass between the same, said grippers being tapered transversely, substantially as and for the purposes described.

7. A tobacco stemming machine comprising suitable stripping rollers, sprocket chains associated therewith, grippers carried on said sprocket chains, means for separating the rollers to allow the grippers to pass between the same, said grippers being tapered transversely, substantially as and for the purposes described.

8. A tobacco stemming machine comprising a plurality of stripping rollers arranged in pairs one behind the other, said stripping rollers being provided with a series of grooves transversely of the said rollers, and means for leading the leaves to be stemmed to the said rollers.

9. A tobacco stemming machine comprising a plurality of stripping rollers arranged in pairs one behind the other, means for leading the leaves to be stemmed to said rollers, the said rollers being provided with a series of grooves transversely of the same, the grooves on the rollers first engaging the leaf being of a greater depth than the grooves on the succeeding rollers.

10. A tobacco stemming machine comprising a plurality of stripping rollers arranged in pairs one behind the other, said rollers being provided with grooves, the grooves in one pair of rollers being shallower than the grooves in the other means for conveying the leaves to be stemmed to said stripping rollers, and a fan associated with each pair of stripping rollers for throwing a blast of air on the leaf as it is being stemmed for rotating the same.

11. A tobacco stemming machine comprising a plurality of stripping rollers arranged in pairs one behind the other, said rollers being provided with grooves, the grooves in one pair of rollers being shallower than the grooves in the other sprocket chains asso-

ciated with said stripping rollers, grippers carried on said sprocket chains, cams carried by said sprocket chains for separating the rollers for allowing the grippers to pass between the same, and an on-bearing apron for leading the leaves to be stemmed to said grippers.

12. A tobacco stemming machine comprising a plurality of stripping rollers arranged in pairs one behind the other, said rollers being provided with grooves, the grooves in one pair of rollers being shallower than the grooves in the other grippers for conveying the leaves to be stripped to said rollers, means for carrying said grippers to said rollers, means for separating the rollers for allowing the grippers to pass between the same, and means for bringing the rollers together to act upon and strip the leaf.

In testimony whereof, I affix my signature, in presence of two witnesses.

FREDERICK K. HEUPEL.

Witnesses:

GILBERT A. CLARK,  
ROSA M. C. CLARK.