J. P. SCOVILL.

TOBACCO LEAF STEMMING MACHINE.

APPLICATION FILED APR. 8, 1913.

1,067,149.

Patented July 8, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

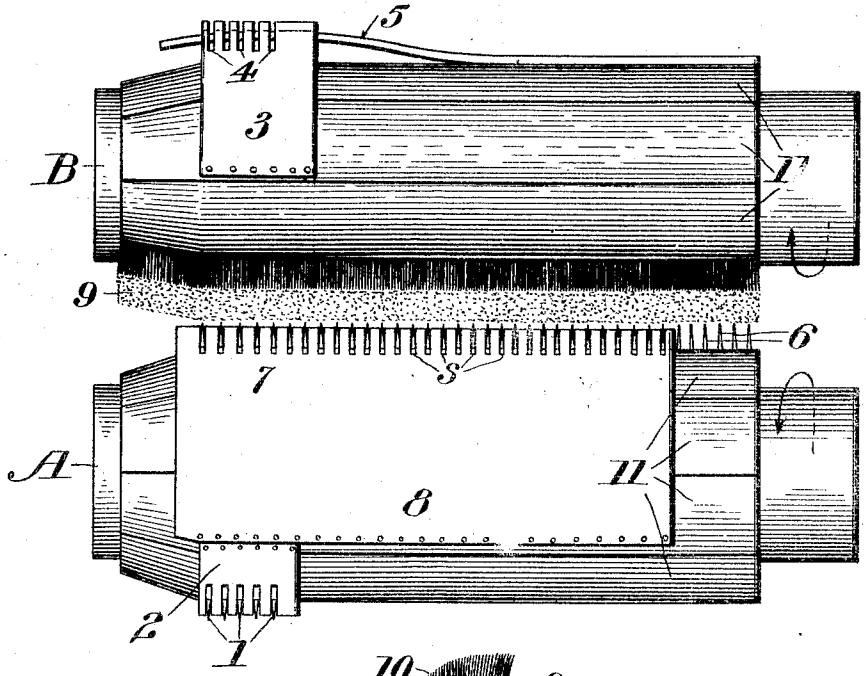
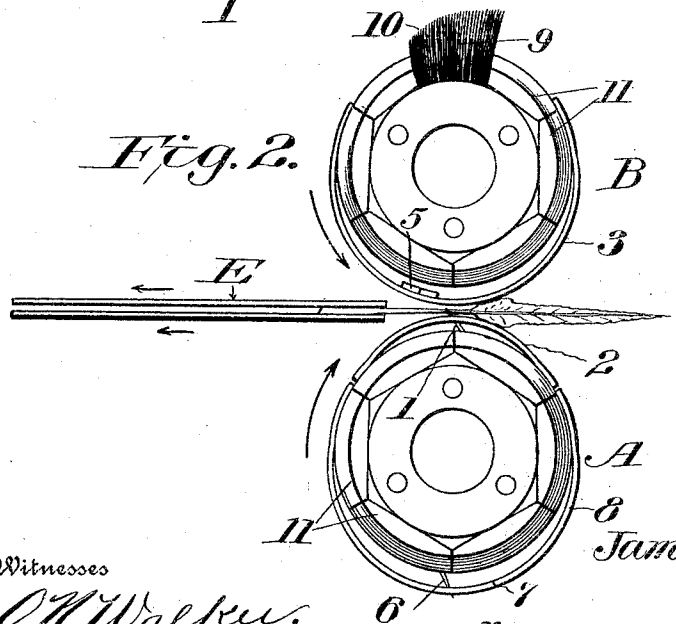


Fig. 2.



Witnesses

C. H. Walker.

Paul Finckel

Inventor,

James P. Scovill.

By Wood Wood & Nathan.

Attorneys

J. P. SCOVILL.

TOBACCO LEAF STEMMING MACHINE.

APPLICATION FILED APR. 8, 1913.

1,067,149.

Patented July 8, 1913.

2 SHEETS—SHEET 2.

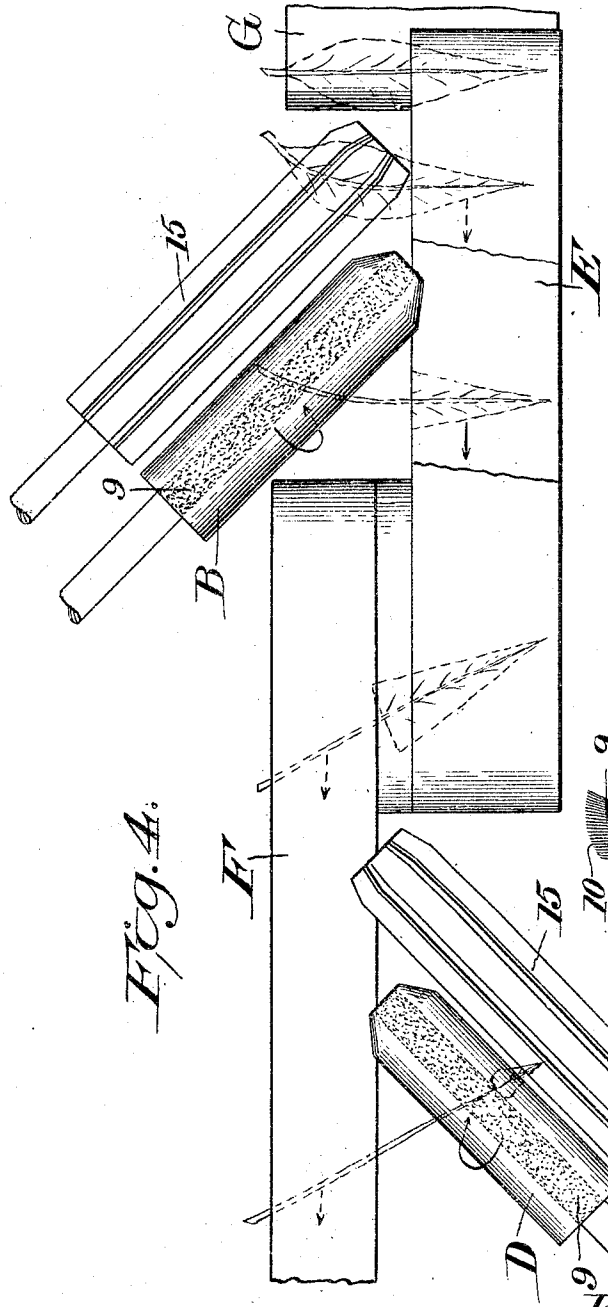


Fig. 4.

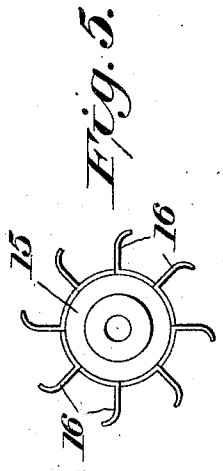


Fig. 5.

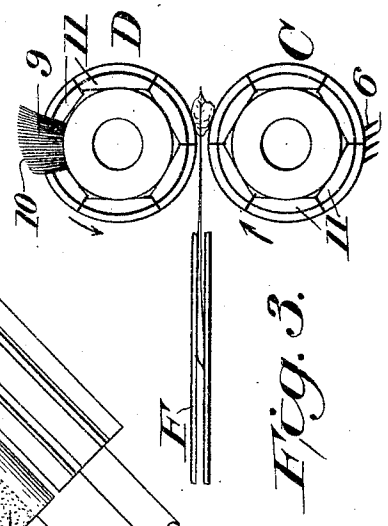


Fig. 3.

Inventor,

James P. Scovill.

Witnesses

C. M. Walker.

Paul Finckel

By Wood, Wood & Nathan

Attorneys

UNITED STATES PATENT OFFICE.

JAMES P. SCOVILL, OF CINCINNATI, OHIO, ASSIGNOR TO TROJAN MACHINE COMPANY, OF TROY, NEW YORK, A CORPORATION OF NEW YORK.

TOBACCO-LEAF-STEMMING MACHINE.

1,067,149. Specification of Letters Patent. Patented July 8, 1913.

Application filed April 8, 1913. Serial No. 759,592.

To all whom it may concern:

Be it known that I, JAMES P. SCOVILL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Tobacco-Leaf-Stemming Machines, of which the following is a specification.

My invention relates to an improvement in stripping rolls for a tobacco stemming machine of the general character disclosed in my prior co-pending applications, to wit: Serial No. 698,456 filed May 20, 1912; Serial No. 690,883 filed April 15, 1912 and Serial No. 715,807 filed Aug. 18, 1912.

It will be understood that the stripping rolls with which the claims are chiefly concerned constitute components of an organized machine of the general type illustrated in the patent granted R. W. Coffee No. 569,575 granted Oct. 13, 1896. In this prior patent and the others with which I am familiar the stripping rolls have a continuous stripping periphery. In one of my rolls there is a longitudinal row of pointed metallic instrumentalities, such as wires, needles or tacks, and on the opposing roll is a fiber or resilient segment set to contact or coact with the leaf puncturing instrumentalities, so that there is a simultaneous puncturing and wiping action. The major portion of the peripheral surface is smooth, non-contacting with its adjacent surface, so that the stripping action is intermittent, and the leaf can be readily introduced between the rolls. At the same time, either the circumference of the rolls or of the peripheral surface, intermediate the stripping elements, is about equal to an average leaf length, so that there is no tendency to wrap the leaf or stem around the roll and it will be thrown out should it become pulled away from the belts. In this way I can use the most effective speeds safely and efficiently, and there are no structural parts other than the strippers which would tend to exert a concussion on the leaf.

Following is a brief statement of features, characteristics, and objects of the invention. Stripping elements simultaneously coacting on opposite sides of the leaf, of differential efficiency. Action intermitting, maintaining an opening between the rolls during greater part of a single rotation. Stripping segments narrow faced circumferentially so as to present a minimum amount of leaf attacking instrumentalities liable to either break or entangle the stems. Circumference of rolls approximating or greater than average leaf length so that a stem will not overlap around the roll. Each roll has a major portion of its periphery smooth or non-stripping, and non-contacting with the adjacent periphery, so as to maintain openings between rolls during greater part of a single rotation, for ready leaf access. Flexible member, the loose portion extended under the influence of centrifugal force, operating in relation to the extremities of the metallic or leaf puncturing instrumentalities, not only to conceal them normally, but momentarily to expose them for stripping on the tangential line of leaf presentation, and presenting a yieldable radial surface, coacting with the stripping.

The object is to prevent leaf mauling, leaf entanglement or stem breaking, to minimize the stripping elements so as to use the roll speeds which will effectively separate the leaf from the stem without mauling the strips or severing the stems; to maintain an opening between the rolls the greater part of the time for leaf access; to make stripping elements on one roll of differential efficiency compared to stripping elements of the opposite roll, so that the elements operating simultaneously on opposite sides of the leaf approximate in character the different conditions of the texture presented by a transverse section of the leaf during operation. The effect of the simultaneous action of elements of differential efficiency upon opposite sides of the leaf is to more or less turn the stem on its axis as it passes endwise between the rolls so as to expose every portion of the web to the stripping action.

It is to be understood that there are two sets of rolls each operating in relation to a stem gripping carrier advancing the leaf at an angle to the axes of the rolls so as to cause the ungripped portion of the leaf or stem to be drawn between the rolls and to move progressively endwise of the rolls. In

addition to the fact that the stripping components of a given set of rolls represents differential efficiency, there is an additional element of differential efficiency as between the two sets of rolls. That is, one set of rolls is designed to operate in a direction counter to the leaf grain, a relatively easy operation moving progressively from a medial portion of the leaf toward the butt of the stem so that the stripping instrumentalities for this operation in their aggregate effect, represent a minor stripping efficiency; on the other hand, the other set of rolls operate from the medial portion of the leaf toward the tip in the general direction of the leaf grain, a relatively more difficult separation and consequently the aggregate stripping efficiency for this step is relatively greater. It is also to be understood that the capacity of the machine is somewhat in proportion to the rate of speed at which the rolls can be safely and efficiently rotated.

A two-fold object is to obtain the maximum stripping capacity with roll speeds and strippers producing the minimum amount of roll counter dragging influences relative to the draw of the carrier, so as to subject the leaf to the minimum amount of stem breaking, leaf mauling, and leaf entangling influences, and to reduce to a minimum all influences opposing the introduction of the leaf between the ends of the rolls and the progressive travel of the leaf in a direction endwise of the roll. The greater the area of roll stripping surface, the greater the tendency of leaf to become impaled upon the extremities of the strippers, adhering to and impeding the roll, hence I reduce to a minimum the area of roll stripping surface, depending upon speeds appropriate to impart a high frequency or intermittent character or stripping operation, the non stripping roll surfaces predominating.

The relative ratio of carrier travel, roll speeds, and degree of stripping efficiency may be selected with reference to the conditions of the products and the results desired. In one instance, a maximum stemming capacity may be the main objective, and more or less slight mauling of the strips a secondary consideration, as in producing products for pipes or cigarette smoking and other uses, whereas in another instance it may be desirable to curtail the maximum capacity for producing a better condition of strips, as in preparing tobacco for cigar fillers or plugs, and various types of smoking tobacco.

The objects, features and characteristics will be readily understood in connection with the description of the accompanying drawings forming a part of this specification and representing the preferred embodiment of the invention, in which:—

Figure 1 is a front elevation of the first stripping rolls. Fig. 2 is an end view of said rolls. Fig. 3 is an end view of the second stripping rolls. Fig. 4 is a diagrammatic top plan view of the stem gripping carriers, or leaf presenting means and stripping rolls representing their general relative disposition in an organized machine. Fig. 5 is an end view of a rejecting roll one of which or a pair of which is preferably placed in front of each pair of stripping rolls.

Arrows are used to indicate directions of rotation and movement and the leaves are crudely dotted in to indicate their general direction of travel and position.

The first strippers comprise the rolls A, B, rotated in opposite directions through any suitable provision, and C, D, represent the second stripping rolls also operated in opposite directions.

The first rolls are set at an angle to stem gripping carrier belts E, and the second set of rolls is set at approximately the same angle relative to a second stem gripping carrier F. The two sets of stem gripping carriers have an overlapping relationship or zone of concurrent action for shifting the stem grip and transposing the order of leaf advancement, so that the stem is held and pulled substantially the same way for each of the sequential operations. This might be accomplished by giving the second carrier a relatively higher speed than the first carrier and the same general direction of travel, when the machine is organized substantially as indicated in Fig. 4, but it is understood that the same general end might be accomplished by causing the second carrier to move at an angle in relation to the first carrier substantially as shown in a machine organization disclosed in my copending application Serial No. 690,883, filed April 15, 1912. Preferably, the rolls have a circumference approximately of an average leaf length say eighteen inches, so that a stem or leaf will not have opportunity to lap around one of these rolls, while if a stem is occasionally drawn out of the grip of the carrier, the centrifugal force will throw it away from the rolls and prevent them from becoming packed or encumbered. The periphery of each roll has a smooth or non-stripping circumferential surface, the rolls being so set that during rotation the smooth surfaces do not contact but present and maintain an opening between the rolls during the greater part of the rotation, rendering ready access for the leaves drawn by the belt. The non-stripping, non-contacting roll surfaces, also function to hold the portion of the leaf undergoing operation substantially in the plane of tangential presentation to the strippers, and being preferably smooth surfaces they offer no opposition to the movement of the leaf endwise of the rolls, c[illegible]o the draw of the

leaf longitudinally of its stem between the rolls during the non-stripping period of a given rotation.

On the lower roll A, I preferably provide a short longitudinal row of initial leaf puncturing needles 1, at the end of the roll immediately adjacent the carrier belt. Preferably I modify the operation of these needles 1 by attaching the opposite ends of a circumferential flexible member 2, say a belt section, to the smooth portions of the periphery, the medial, loose portion of this flexible member being disposed over the needles 1, through which the needles project. The centrifugal force throws this loose medial portion of the flexible member outwardly so that it not only conceals the extremities of the needles but the loose portion forms a radially yielding surface which can be forced inwardly to expose the needles slightly and momentarily at the tangential line of leaf presentation, so as to puncture the web and then retreat without imparting an elongated tear or cut. On the other roll B, adjacent the needles 1, I preferably provide a second circumferential flexible member 3, the ends of which are secured to the periphery, the medial portion being loose directly opposite the needles, and I preferably form slits 4 in this member 3, so that the needles will not engage into this leather piece 3. It is desirable that this member 3 shall be stiffer or less flexible than the member 2, so as to urge the leaf toward the needles and to depress the medial portion of the member 2 sufficiently to bring the needles momentarily into action. A convenient way of stiffening this member 3 is to provide a longitudinal flexible member 5, such as a piece of leather or rubber belting, the outer end of which is attached to the periphery of the upper roll, the inner or free end extending transversely between the periphery of the roll and the loose portion of the member 3, acting as a sort of spring or tension influence.

While the initial leaf puncturing instrumentalities are not of the essence of the invention, nor required under all conditions, they are advantageous under some conditions of operation depending upon the character of the product. Of course, the instrumentalities are only shown in the rolls which do the first stripping. The major stripping efficiency elements or spurs for the roll A, comprise a longitudinal row of wires, needles, or tacks 6, projecting radially from the periphery and preferably piercing or projecting through slots *s* of the medial, loose portion 7 of a circumferential flexible member 8, the opposite ends of which are attached to the periphery of the roll, and this flexible member operates in relation to the elements 6, substantially as the flexible member 2 coördinates with the needles 1. Preferably the tacks or spurs 6 are spaced to approximate the diameter of the butt portion of the stem which passes between the first rolls, and the spurs are preferably inclined reversely to the direction of roll rotation so as not to hook into the product.

On the companion roll B, I place a narrow faced brush, fiber or resilient segment 9 radially projecting from the periphery and set to contact the elements 6 during a roll rotation. The fiber represents a stripping segment of minor efficiency, the elements 6, strippers or a coacting segment of major efficiency, simultaneously operating upon opposite sides of the leaf and making momentary contact once during a single rotation. Preferably the brush segment 9 is formed with the inclined face 10 so as to present the shorter fibers first to the bent tacks 6 in the direction of roll rotation so that there is a gradual closing in upon the leaf of these two stripping elements of differential efficiency. In the second set of rolls C, D, I provide a similar brush segment and harsher stripping segment of spurs, except that no flexible member is shown, and on the roll C of the second set I preferably provide two or more rows of spurs 6, or stagger them, so that the aggregate stripping efficiency of the second stripping rolls is greater than that of the first rolls, in order to separate the leaf from the stem when the stripping is in the general direction of the leaf grain or toward the tip. The spurs 6 of the second set of rolls are set relatively closer together to approximate the diameter of the tip ends of the stems passing through the second rolls.

In practice, I preferably run the first set of rolls at the rate of say, nine hundred rotations a minute or even more, while in the second rolls the rotation is proportionately higher, say twelve hundred rotations a minute or more so as to accentuate the difference between their relatively differential stripping efficiency. At the same time preferably the second belt has a faster surface, than the first stem gripping carrier. It will be noticed that a greater portion of the periphery of each roll is smooth and non contacting and preferably formed by segmental wooden blocks 11 and as the smooth peripheral surfaces do not contact, they maintain an opening between the rolls readily admitting leaf presentation and the traverse of the leaf lengthwise of the rolls, while the stripping segments occupy but a small portion of the periphery so that the operation is intermittent, but owing to the high speeds of the rolls, the differential stripping elements have opportunity to operate upon all portions of the leaf lengthwise of the stem passing endwise between the rolls, so as to effectually separate the web from the

stem close to and parallel with the stem and whether stripping toward the butt or toward the tip. The fiber or resilient segment 9 is closely compacted and only projects slightly radially beyond the smooth periphery formed by the adjacent blocks 11, thereby limiting the depth of stem embedment into the brush surface, while the wood segments 11 act as binders laterally confining or compacting the fibers. The simultaneous differential and intermittent stripping is sufficient to effect the separation while reducing to a minimum the counter drag of rolls upon the leaf held between the carrier belts under superior tension.

Preferably I place before the stripping rolls, a roll or pair of rolls 15, see Figs. 4 and 5 appropriately rotated, and having flexible flaps or radial repellers 16, for throwing out short or broken leaves and preventing them from entering the stripping rolls, or being retained by the stem gripping carriers so as to be carried through the machine without adequate stripping. These discarded products can be stripped on the same machine by so feeding them as to insure an effective grip of the carrier so as to effectively subject the leaf web to the stripping action. Of course all the strippers, whether spurs, fiber wires, tacks or brushes, project radially from the periphery and form fixed components thereof defining a stripping surface or segment, though they may be bent or inclined so as not to literally coincide with the geometrical radius of the rolls. Preferably the minor efficient elements are resilient, the harsher coacting elements are stiffer or relatively non-resilient so as to form simultaneously coacting stripping elements of differential efficiency, though the comparative degree of resilience is not of limiting significance except where the differential stripping efficiency is directly a characterization of the claims.

Either the elements 1 or 6 may be generalized as spurs fixed in relation to the periphery, and the flexible circumferential belt may be generalized as a radially movable member effectively exposing the spurs for stripping but rendering said spurs inoperative except on the tangential line of leaf presentation.

The invention is of course susceptible of various embodiments differing from the specific disclosure of the drawings.

In the first pair of rolls one pair of leaf attacking agencies, to-wit, the spurs 1 and circumferential flexible member 3, have definite leaf puncturing, or transverse web-severing function which will not cut the stem, while the other agencies, to-wit, the brush segment and coacting spurs have definite stripping function longitudinally of the stem. These two agencies coördinate as the rolls are rotated to administer these two treatments as the leaf is drawn between the rolls longitudinally of its stem, while at the same time it travels in a general direction endwise of the rolls.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a tobacco stemming machine, a roll having a stripping segment extending endwise across the periphery comprising radially projected fibers, said roll having a large portion of its periphery constituting a non-stripping surface, and means engaging the stem and drawing it into operative relation to the stripping roll.

2. In a tobacco stemming machine, a pair of oppositely rotated rolls each having a segment of radially projected members the components being of differential stripping efficiency, said segments coacting during a roll rotation, and each of said rolls having a major portion of its periphery constituting a non-stripping surface, providing an open space between the rolls during a greater part of a single rotation, and means engaging the stem and drawing it into operative relation to the stripping rolls.

3. In a tobacco stemming machine, in combination with a stem-stripping carrier, a roll having a stripping segment of closely compacted fibers, radially secured to the periphery constituting stripping instrumentalities of minor efficiency, a companion roll provided with radially secured members constituting stripping instrumentalities of major efficiency, said rolls being so arranged that said stripping instrumentalities and segment coact during the roll rotation, the major portion of each roll being arranged to provide a non-stripping surface presenting an opening between the rolls except when the stripping members are brought into coactive position.

4. In a tobacco stemming machine, a roll having a brush stripping segment, a greater portion of the peripheral surface being non-stripping, and means engaging the stem and drawing it into operative relation to the stripping roll.

5. In a tobacco stemming machine, a roll having a longitudinal row of spurs, the major portion of the periphery being a non-stripping surface, and means engaging the stem and drawing it into operative relation to the stripping roll.

6. In a tobacco stemming machine, a roll formed with a single longitudinal, minor circumferential stripping segment comprising closely compacted resilient elements, and means engaging the stem and drawing it into operative relation to the stripping roll.

7. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls, one being

formed with a longitudinal stripping segment comprising closely compacted resilient elements, the other roll having a longitudina row of spurs, the differential stripping elements coacting during the roll rotation, the major portion of the peripheral surface of each roll being non-stripping and non-contacting, and the resilient segment having an inclined face presenting the shorter elements first to the spurs in the direction of roll rotation.

8. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls having respectively stripping instrumentalities of minor and major efficiency adapted to simultaneously operate upon opposite sides of a leaf tending to turn the stem on its axis as it is drawn endwise of the rolls, and the major portion of the peripheral surface of each roll being non-stripping.

9. In a tobacco stemming machine, a roll having stripping segment and a major non-stripping peripheral surface, the circumference approximating an average leaf length, and means presenting a leaf to the rotating roll.

10. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotating rolls each having a longitudinal row of stripping instrumentalities, one of which is of major and the other of minor stripping efficiency, and set to coact during roll rotation, said rolls having non-stripping, non-contacting peripheral surfaces, the circumference of the rolls approximating an average leaf length.

11. In a tobacco stripping machine, in combination with leaf presenting means, a pair of oppositely rotating rolls having alternate stripping and non-stripping peripheral surfaces, the stripping surfaces coacting and the non-stripping surfaces non-contacting, maintaining an opening through the rolls during the greater part of a single rotation, and the strippers of one roll being of differential efficiency as compared to the strippers of the companion roll.

12. In a tobacco stemming machine, in combination with leaf presenting means, a roll formed with a longitudinal row, of strippers, said roll having a major non-stripping surface, a flexible member secured to the non-stripping surface to provide a yielding surface having its loose portion disposed adjacent to the strippers.

13. In a tobacco stemming machine, in combination with leaf presenting means, a roll formed with a longitudinal row of strippers, said roll having a considerable non-stripping surface, a flexible member, the opposite ends of which are secured to the non-stripping peripheral surface providing a loose portion, and the strippers operating through said loose portion.

14. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls, one being formed with a longitudinal row of leaf puncturing instrumentalities, a flexible member, the opposite ends being secured to the roll periphery, the puncturing instrumentalities operating through the medial loose portion of said flexible member, the opposite roll having a second flexible member, the medial loose portion being arranged to coact with the medial loose portion of the flexible member of its companion roll.

15. In a tobacco stemming machine, a roll, a flexible member extending circumferentially, its opposite ends being secured to the roll leaving a medial loose portion, and a longitudinal flexible member one end of which is secured to the roll, the free end extending transversely between the periphery of the roll, and the medial loose portion of the circumferential member.

16. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls one being formed with a longitudinal row of leaf puncturing instrumentalities, a circumferential flexible member having a loose portion disposed in relation to the puncturing instrumentalities, the other roll having a member set to coact with the loose portion of the flexible member, and a considerable portion of the circumference of said rolls being non-stripping.

17. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls having stripping elements of differential efficiency set to simultaneously operate upon opposite sides of a leaf, a flexible member secured to one of said rolls to provide a radially yielding surface, said rolls having non-stripping surfaces maintaining an opening between the rolls during a greater part of a single rotation, the circumference of said rolls approximating an average leaf length.

18. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls one formed with a longitudinal row of leaf puncturing instrumentalities, a circumferential member having its opposite ends attached to the roll, its loose portion normally concealing the extremities of the puncturing instrumentalities, the companion roll having a lesser flexible member, its loose portion coacting with the loose portion of the adjacent flexible member during roll rotation.

19. In a tobacco stemming machine, in combination with leaf presenting means, a roll having a longitudinal row of leaf puncturing instrumentalities and a flexible member secured to the roll with its loose portion pierced to normally conceal the extremities of the puncturing instrumentalities, and

yielding under radial pressure to momentarily expose the said instrumentalities for operation.

20. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls, a longitudinal row of fibers on one roll, a longitudinal row of coacting harsher stripping instrumentalities on the other roll, the major portion of the peripheries being non-contacting and non-stripping.

21. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls, a longitudinal row of fibers on one roll, a longitudinal row of coacting harsher stripping instrumentalities on the other roll, a flexible member on one roll having its loose portion coacting with the harsher stripping instrumentalities, the major portion of the peripheries being non-contacting and non-stripping.

22. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls, having stripping elements of differential efficiency adapted to operate simultaneously upon opposite sides of a leaf, said rolls having non-contacting and non-stripping peripheral surfaces, and so arranged that during the roll rotation, there is an intermitting action of simultaneously engaging stripping elements of differential efficiency.

23. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls each formed with peripheral stripping and non-stripping surfaces, the stripping elements coacting during roll rotation, the stripping instrumentalities of one roll being of major and the stripping instrumentalities of the other roll of minor efficiency, and the non-stripping surfaces providing ready leaf access during the roll rotation.

24. In a tobacco stemming machine, a first and a second roll oppositely rotated, means presenting a leaf thereto, a row of leaf puncturing instrumentalities on the first roll, a flexible member on the first roll having its loose portion pierced to operate in relation to the extremities of said puncturing instrumentalities, a second row of harsher stripping instrumentalities on the first roll on another portion of the periphery, a lesser flexible member on the second roll having its loose portion coacting with the puncturing instrumentalities of the first roll, and a compacted brush segment on another portion of the periphery of said second roll, set to coact with the harsher instrumentalities of the first roll, the major portion of the periphery being non-contacting and non-stripping.

25. In a tobacco stemming machine, in combination with leaf presenting means, a first and a second set of oppositely rotating rolls, the rolls of each set having stripping instrumentalities of differential efficiency operating simultaneously upon opposite sides of the leaf, the aggregate stripping efficiency of one set of rolls being of minor character to operate against the leaf grain and the aggregate stripping efficiency of the other set of rolls being of major character to operate in a general direction of the leaf grain.

26. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotated rolls, one having a longitudinal row of major efficiency stripping elements, the other having a coacting, longitudinal row of less efficiency stripping elements, portions of the peripheries being non-contacting and non-stripping surfaces, rendering an intermittent action of differential stripping efficiency, the lesser efficiency elements exerting a wiping action on the leaf simultaneously with the puncturing or rending action of the major stripping efficiency elements.

27. In a tobacco stemming machine, in combination with leaf presenting means, a roll having radially projecting leaf attacking elements for separating the web from the stem, and a flexible member having a surface operating under the influence of centrifugal force in relation to the extremities of said elements, and yieldable under radial pressure.

28. In a tobacco stemming machine, in combination with leaf presenting means, a pair of oppositely rotating rolls, radially projecting stripping elements, and a flexible member having a loose medial portion operating under the influence of centrifugal force and adapted to yield inwardly under radial pressure.

29. In a tobacco leaf stemming machine, a first and a second stem gripping carrier, having overlapping ends, and the same general direction of travel, arranged for sequential operation, and for transposing the order of leaf advancement between the carriers, a pair of stripping rolls for one carrier having segmental stripping and non-stripping surfaces, and a second pair of stripping rolls for the other carrier.

30. In a tobacco leaf stemming machine, a first and a second stem gripping carrier, said carrier being arranged for delivering a leaf from one to the other carrier, and for transposing the order of leaf advancement, a pair of stripping rolls for one carrier having segmental stripping and non-stripping surfaces, a second pair of stripping rolls for the second carrier, and a flexible member attached to one roll having a portion centrifugally extended and yielding under radial pressure, said member coacting with one of the stripping operations to influence the

leaf position as it is being separated from the stem.

31. In combination with a stem gripping carrier and rotating stripping rolls, a rotating roll having radial repellers, disposed in front of the stripping roll and appropriately rotated for throwing out short or broken leaves and preventing them entering the working parts of the stemmer.

32. In a tobacco stemming machine, leaf presenting means, oppositely rotated rolls, means drawing a leaf through said rolls, one of said rolls having radially projecting leaf attacking elements on a portion of its periphery, and a circumferential flexible member on said roll having a portion expanding under the influence of centrifugal force and forming a yielding radial surface, said leaf attacking elements operating through said expanding portion.

33. In a tobacco stemming machine, leaf presenting means, a pair of oppositely rotated rolls, means drawing a leaf through said rolls, one of said rolls having radially projecting leaf attacking elements on a portion of its periphery, a circumferential member on said roll having a portion expanding under the influence of centrifugal force and forming a radially yielding surface, said leaf attacking elements operating through said expanding portion of the circumferential member, the other roll having a segment on a portion of its periphery formed of radially projecting resilient elements, and the rolls being arranged so that said segment coacts with the leaf attacking elements of the adjacent roll and with the yielding surface of said circumferential member.

34. In a tobacco stemming machine, leaf presenting means, a roll, in combination with resilient leaf attacking elements radially projecting from said roll and constituting a minor segment of the periphery, and binding segments laterally compacting the elements of said stripping segment, and limiting the depth of stem embedment.

35. In a tobacco stemming machine, leaf presenting means, a roll, in combination with resilient leaf attacking elements radially projecting from said roll and constituting a longitudinally extending minor segment of the periphery, and binding segments having smooth peripheral surfaces laterally adjacent the resilient radial elements, and limiting the depth of stem embedment.

36. In a tobacco stemming machine, leaf presenting means, in combination with, a roll having a longitudinal row of radially projecting spurs, and a coöperating roll having a longitudinal row of radially projecting stripping elements, said rows coacting as the rolls are rotated, the circumferential roll surfaces adjacent said stripping elements being non-contacting and non-stripping and constituting a roll opening supporting the leaf on the lower roll in approximately the tangential plane of presentation.

37. In a tobacco stemming machine, leaf presenting means, a roll, radially projecting spurs on a portion of the periphery, a flexible member having a radially yielding surface expanded under centrifugal force, the spurs operating through said yielding surface, a second roll, and means on the second roll so placed as to coact with the spurs and with the yielding surface of the flexible member of the periphery of the first named roll.

38. In a tobacco stemming machine, leaf presenting means, a roll having leaf attacking elements, and a flexible member secured to the roll and providing a circumferential extending surface yielding radially, and coacting with said leaf attacking elements.

39. In a tobacco stemming machine, leaf presenting means, a pair of rotated rolls, one having a leaf attacking elements, a circumferential flexible member on the other roll having a radially yielding surface expanded by centrifugal force, and formed with circumferential slits for tangentially passing the attacking elements of the opposite roll.

40. In a tobacco stemming machine, leaf presenting means, a pair of rolls, stripping elements, and a flexible circumferential member on one roll having a radially yielding surface expanded by centrifugal force.

41. In a tobacco stemming machine, leaf presenting instrumentalities, a pair of rolls formed with circumferential non-contacting, non-stripping surfaces, coacting to provide leaf access and leaf support during the non-stripping portion of roll rotation, and coacting stripping elements radially projecting from said rolls and extending beyond said non-stripping surfaces, the diameter of the rolls being such that an average length stem cannot entwine circumferentially around either of said rolls.

42. In a tobacco stemming machine, leaf presenting means, a roll having a single segment of radially projecting leaf attacking elements, the major peripheral roll surface being non-stripping, so as to bring said single element into operation but once during one rotation.

43. In a tobacco stemming machine, leaf presenting means, a pair of rolls, one of said rolls having a short longitudinal row of leaf puncturing elements at the stem-entering end of the roll, the row being lineally proportioned to substantially sever the web transversely as it passes endwise of the roll.

44. In a tobacco stemming machine, leaf presenting means, a roll, fixed spurs on a portion of the periphery, and a radially yielding surface expanded by centrifugal

force, through which the extremities of the spurs project during the stripping operation.

45. In a tobacco stemming machine, leaf presenting means, a roll, fixed spurs on the periphery, and a radially movable member operating to produce an effective spur projection beyond said member during the roll rotation, for the stripping action, and to render said spurs inoperative except on the tangential line of leaf presentation.

46. In a tobacco stemming machine, leaf presenting means for gripping and pulling one end of the leaf, an angularly disposed pair of stripping rolls, one roll being formed with a longitudinal row of peripheral spurs, and the other roll being formed with a longitudinal resilient segment, said rolls being arranged to bring said differential stripping elements into simultaneous coaction upon opposite sides of the leaf, tending to turn the ungripped end of the leaf on its axis as it progresses endwise between the rolls.

47. In a tobacco stemming machine, leaf presenting means, and a roll formed with a longitudinal row of peripheral spurs, spaced one from another to afford a stem-passage between adjacent spurs, longitudinally of the roll approximating the diameter of that portion of the stem to be drawn endwise of said roll by said leaf presenting means.

48. In a tobacco stemming machine, means for gripping and drawing a leaf, stripping rolls rotating in opposition to the draw of the carrier, leaf puncturing spurs on a portion of the periphery of one of the rolls at the leaf entering end, said spurs being spaced to afford intermediate stem passage, for transversely severing the leaf without cutting the stem, and coacting stripping elements on other portions of the roll peripheries, for stripping from said transverse cut longitudinally of the stem.

49. In a tobacco stemming machine, a stem gripping carrier, a pair of rolls rotating in opposition to the draw of the carrier, provided with a row of leaf puncturing spurs adjacent the carrier, for cutting the leaf transversely without severing the stem, and also provided with coacting stripping elements extending longitudinally of the rolls, positioned to operate after the leaf cutting, to strip longitudinally of the stem from the cut line to the end of the stem, as the leaf travels endwise of and is drawn through the rolls by the carrier.

JAMES P. SCOVILL.

Witnesses:
PAUL FINCKEL,
ANNIE COOPER.