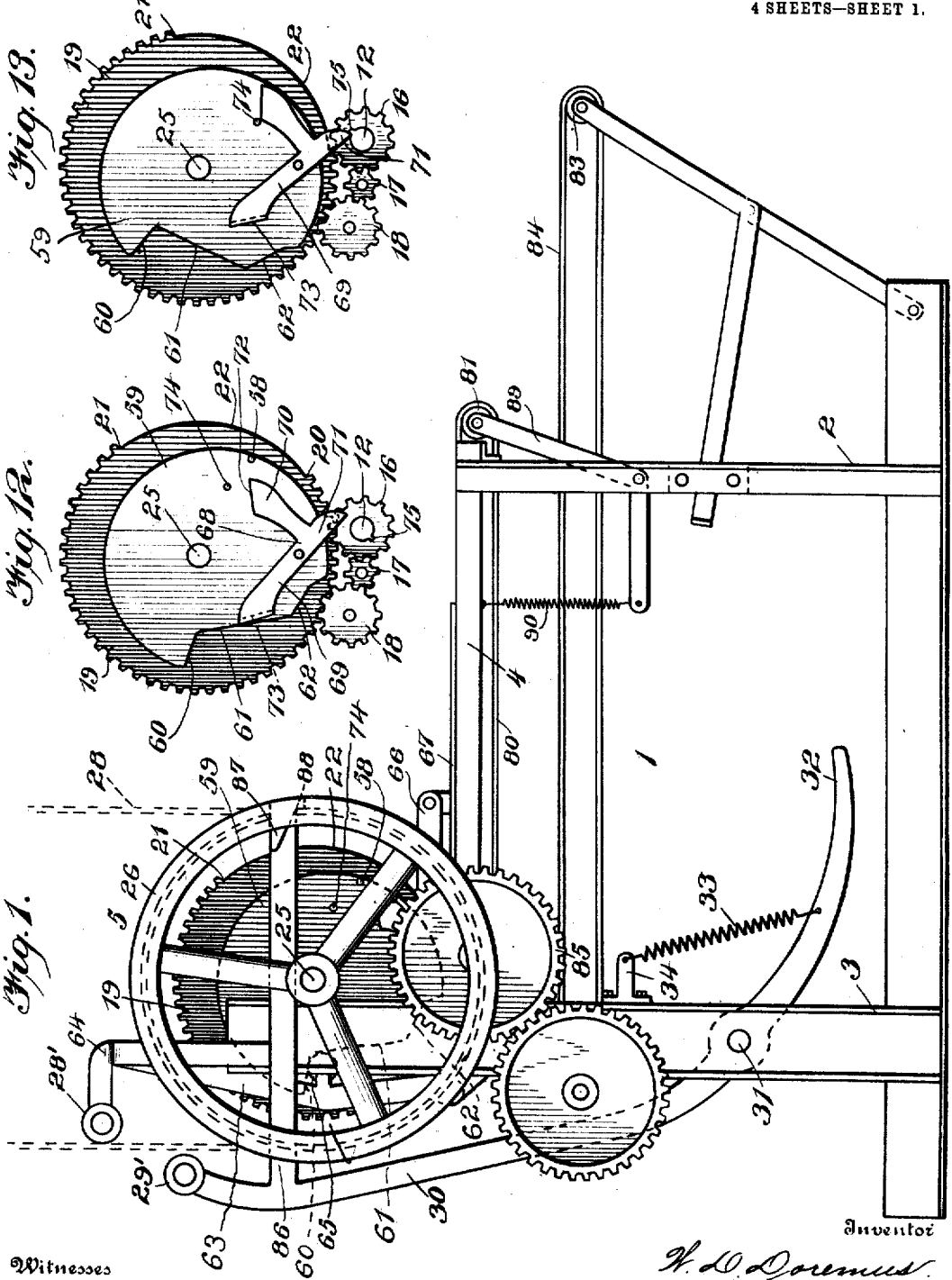


W. D. DOREMUS.
TOBACCO STEMMING MACHINE.
APPLICATION FILED NOV. 27, 1905.

Patented Sept. 7, 1909.

4 SHEETS—SHEET 1.

933,065.



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Fig. 12.

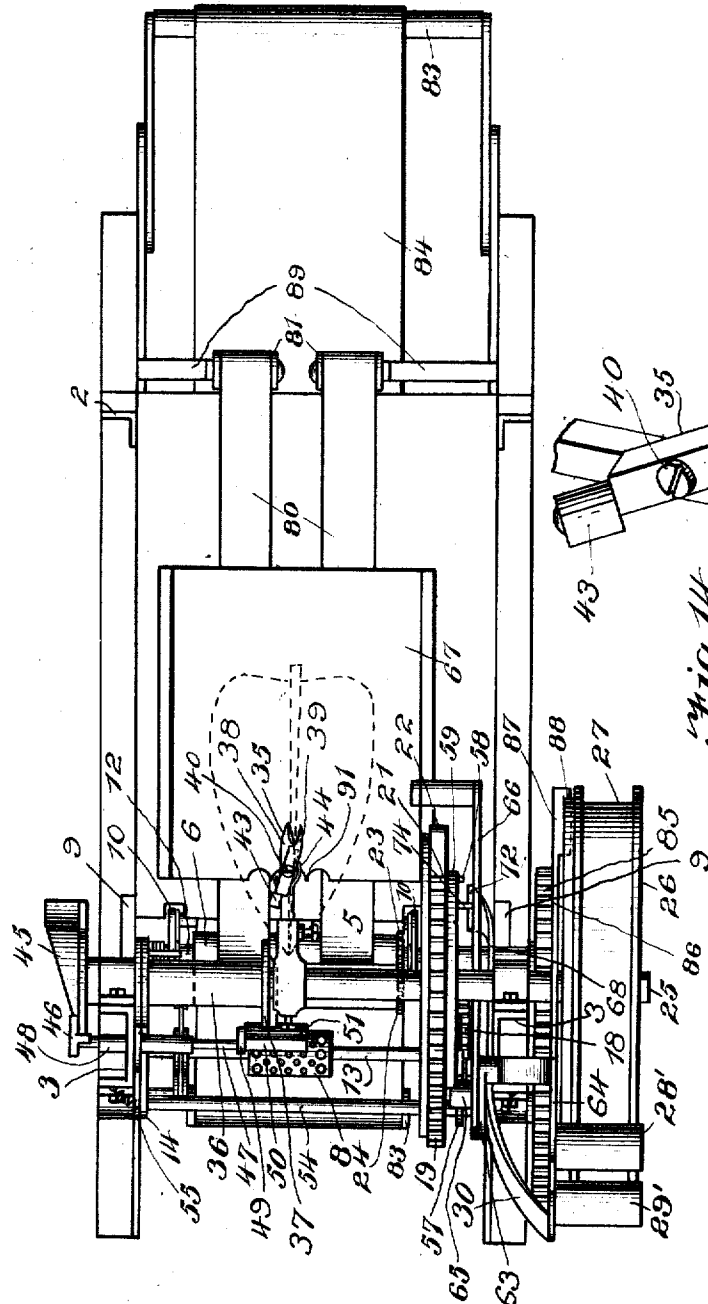
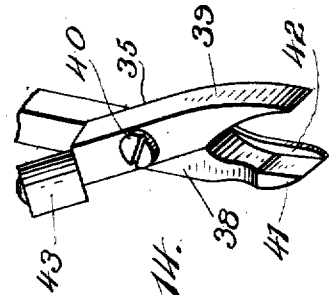


Fig. 14.



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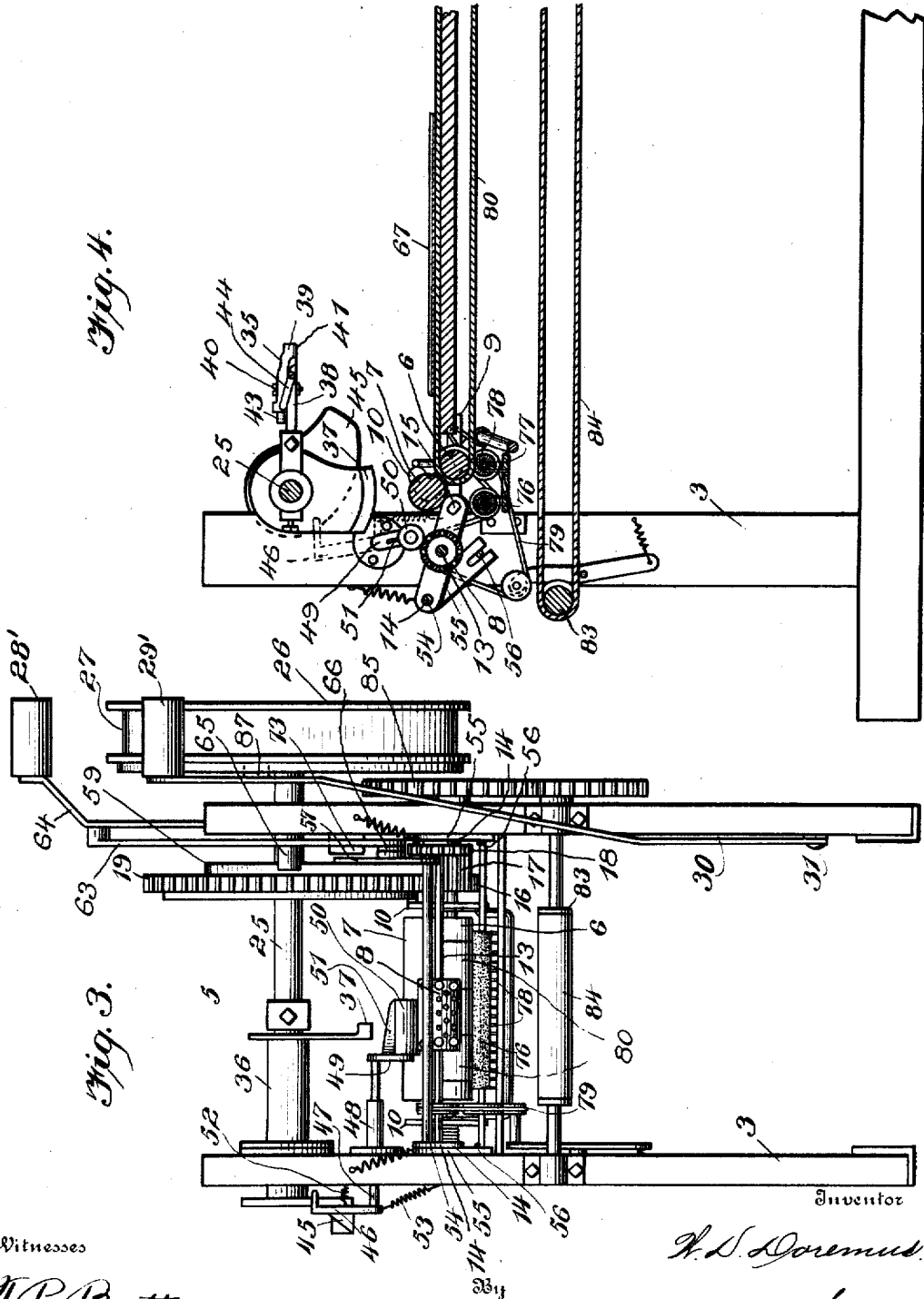
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4 SHEETS—SHEET 3.



Witnesses

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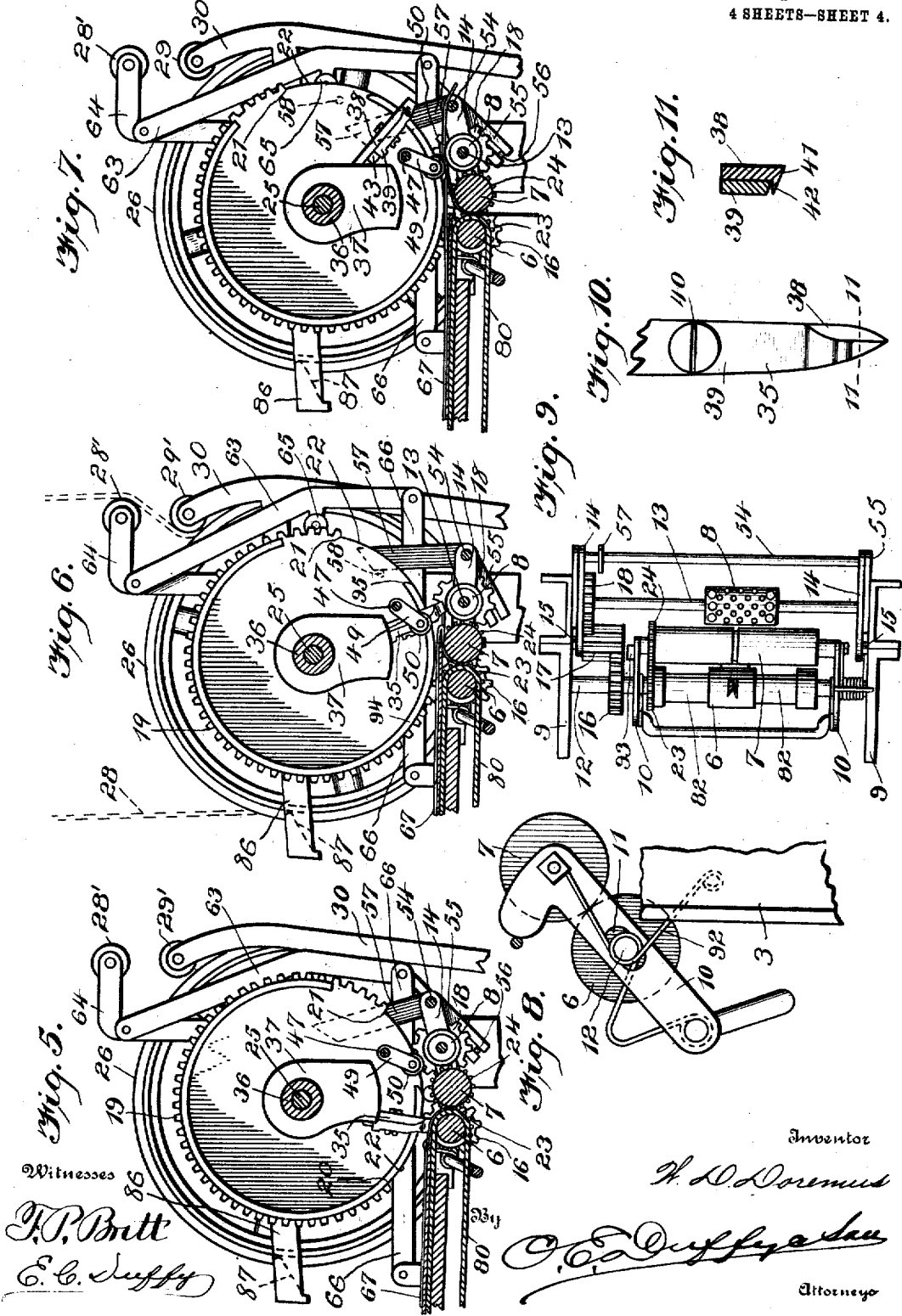
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Witnesses
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UNITED STATES PATENT OFFICE.

WILLARD D. DOREMUS, OF WASHINGTON, DISTRICT OF COLUMBIA.

TOBACCO-STEMMING MACHINE.

933,065.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed November 27, 1905. Serial No. 404,156.

To all whom it may concern:

Be it known that I, WILLARD D. DOREMUS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Tobacco-Stepping 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 but more particularly to a machine for stemming tobacco, wrappers, binders and fillers used in the manufacture of cigars.

A further object of my invention is to provide a tobacco stemming machine which will stem the leaf without in any way injuring the same, and which will entirely strip the leaf from the stem leaving no waste portion of the leaf on the stem.

A further object of my invention is to provide a tobacco stemming machine which will stem a greater quantity of tobacco, and stem the same better and more economically than can be done by hand.

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

With all these objects in view my invention consists in the novel arrangement of the rollers for stemming the tobacco.

My invention also consists in the novel construction and operation of the reciprocating table which carries the leaf to the rollers.

My invention also consists in the novel construction of the stemming mechanism which puts a fold in the leaf during the stemming thereof thereby insuring an absolutely clean stemming of the leaf.

My invention also consists in the novel construction of the gripper and also in combination of the gripper with the operating rollers.

My invention further consists in the novel construction and arrangement of the traveling apron which acting in conjunction with the reciprocating table carries the leaf to the stemming rollers.

My invention also consists in the novel

construction of the mechanism for operating the parts and also in certain other novel features 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 the tobacco stemming machine. Fig. 2 is a top plan view thereof. Fig. 3 is a rear end elevation. Fig. 4 is a longitudinal vertical sectional view through the after portion of the machine. Fig. 5 is a longitudinal vertical sectional view showing the gripper in the act of engaging the stem. Fig. 6 is a similar view showing the gripper with stem and illustrating fold in the leaf. Fig. 7 is a similar view showing gripper released from stem and leaf passing through the stemming rollers. Fig. 8 is a detail view showing two of the stemming rollers and their pivoted bracket. Fig. 9 is a top plan view illustrating the stemming rollers. Fig. 10 is a front elevation of the gripper. Fig. 11 is a transverse sectional view taken on line 11—11 of Fig. 10. Fig. 12 is a detail view showing the cam which actuates the reciprocating table, and Fig. 13 is a similar view showing cam in a different position. Fig. 14 is a perspective view of the gripper.

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

1 indicates the tobacco stemming machine which comprises the forward vertical frame pieces 2, rear frame pieces 3 and horizontal side frame pieces 4. The rear vertical frame pieces 3 extend above the horizontal side frame pieces 4 and carry the stemming mechanism 5 as shown in Fig. 1.

Referring to Figs. 9 and 4 which illustrate the positions of the stemming rollers it will be seen that three rollers are employed, a forward roller 6, a central roller 7 and a rear roller 8. The forward roller 6 is suitably mounted in brackets 9 (Fig. 9) secured to the rear frame piece 3, which as shown in Fig. 9 are preferably formed of channel iron. The central roller 7 is journaled in a bracket 10 (Fig. 8) at each end thereof, said bracket 10 being centrally slotted at 11 and mounted on the shaft 12 of the forward roller 6 in such manner that the central roller 7 swings above the forward roller 6 as shown in Fig. 8. The rear roller 8 is preferably hollow having its surface perfo-

rated as shown in Fig. 9, said roller 8 being shorter in length than the rollers 6 and 7 and having a shaft 13 mounted in an arm 14 at each end thereof, said arms being pivoted to the frame 3 at 15 as shown in Fig. 9. Keyed or otherwise secured on the shaft 12 of the forward roller 6 is a pinion wheel 16, said pinion meshing with a smaller pinion 17 which in turn meshes with a pinion 18 carried on the shaft 13 of the rear roller 8, the pinions 16 and 18 being of the same size as shown in Figs. 12 and 13.

Referring to Figs. 12 and 13, 19 indicates the driving gear wheel which as shown is toothed on the greater part of its periphery or from the points 20 and 21; that part of the periphery of said wheel 19 indicated by numeral 22 is smooth as is clearly shown. The partially toothed wheel 19 meshes with the pinion 16 on the shaft 12 of the forward roller 6 driving said roller, which roller in turn drives the rear roller 8 in the same direction through the medium of the intermediate pinion 17, small pinions 23 and 24 being carried on the rollers 6 and 7 communicating the movement of the forward roller 6 to the central roller 7 as clearly shown in Fig. 9; thus it will be seen that all of the rollers 6, 7 and 8 are driven by the partially toothed wheel 19. Carried on the shaft 25 of the partially toothed wheel 19 is a large belt wheel 26 having its periphery grooved at 27 to accommodate a driving belt 28 shown in dotted lines in Fig. 1. Associated with the driving wheel 26 and directly above the same is a roller 28' and associated with said roller 28' is a similar roller 29', said roller 29' being carried on the upper end of a long lever 30, said lever being fulcrumed at 31 to the channel frame 3 as clearly shown in Fig. 1, the lower end of said lever 30 being curved under the machine to form a convenient treadle 32, said treadle being normally held in its raised position by means of a coil spring 33 connected to a suitable bracket 34 on the frame of the machine.

Carried on the shaft 25 of the driving wheel 26, as shown in Figs. 3 and 4, are the stemming grippers 35. Mounted on said shaft 25 but not rotatable therewith is a sleeve 36 (Fig. 3) carrying a stationary cam 37. The grippers 35 comprise two sections 38 and 39, the section 39 being pivoted to the section 38 at 40 as shown in Fig. 10. The gripping end 41 of the section 38 is provided with a wall 42 extending behind the pivoted section 39 when the said grippers are in an operative position as shown in Fig. 11. Carried on the upper end of the pivoted section 39 of the grippers is a roller 43 (Fig. 2), said roller being arranged to engage the cam 37 in order to bring the gripping ends of the grippers into operative position. A leaf spring 44 carried on the

section 38 and having its free end in engagement with the pivoted section normally holds said grippers in an open position as shown in Fig. 2. Carried on the end of the shaft 25 of the driving wheel 26 is a cam 45 (Fig. 3), and associated with said cam 45 is an extension 46 carried on a rock shaft 47 suitably journaled in a sleeve 48 secured to the channel frame piece 3 as shown in Fig. 3. On the inner end of said rock shaft 47 is a depending arm 49 carrying a roller 50, and extending over said roller 50 and secured to the depending arm 49 is a scraper 51 having for its purpose to prevent any particles of the stem or leaf from adhering to the roller 50. A coil spring 52 (Fig. 3) connected to the extension 46 normally draws said extension toward the channel frame pieces 3, while a similar coil spring 53 connected to said extension 46 normally holds the same in an upright position as shown in Fig. 3, which holds the roller 50 in close contact with the perforated roller 8.

Connecting the free ends of the arms 14 (Fig. 9) is a rod 54 being provided on each end thereof with a guide 55 which is slotted in its lower portion as shown in Fig. 4 to receive a pin 56 arranged in the channel frames 3. Connected to the rod 54 is an arm 57 shown in Figs. 5, 6 and 7, said arm being arranged to be engaged by a pin 58 shown in full lines in Fig. 12 and in dotted lines in Figs. 6 and 7, said pin 58 being arranged on the cam 59 (Figs. 12 and 13).

Referring to the cam 59 it will be seen that the same is arranged on the face of the partially toothed wheel 19 and is provided with a sudden off-set 60, a substantial flat surface 61 and a gradual off-set 62. Referring to Figs. 5, 6 and 7 in connection with the cam 59 it will be seen that a lever arm 63 connected to the roller bracket 64 carries a roller 65, which roller 65 is at all times in engagement with the surface or periphery of the cam 59 as illustrated in Fig. 1. Connected to the lower end of the lever arm 63 is a link 66 which is connected at its forward end to a reciprocating table 67, said table being shown in plan in Fig. 2. As the cam 59 rotates with the partially toothed wheel 19 the roller 65 in engagement with the periphery of the cam is forced away from the center of the partially toothed wheel 19 as is of course obvious. Associated with the cam 59 is a pivoted lever 68 pivoted to the frame and having two arms 69 and 70 and a depending extension 71 (Figs. 12 and 13). The arm 70 is provided with a flat end 72 while the end of the arm 69 is provided with a flange 73 shown in dotted lines in Figs. 12 and 13. As the cam 59 rotates, the pin 74 engages the flat surface 72 of the arm 70 forcing the depending portion 71 outwardly as shown in Fig. 13. The shaft 12 of the forward roller 6 is provided

with a stop 75, which stop engages the depending portion 71 of the lever 68, thus preventing rotation of the forward roller 6 and central roller 7 and rear roller 8. As the cam 59 continues to rotate, the pin 74 passes to the flange 73 on the arm 69 of the lever 68 engaging the flange 73 and raising the depending portion 71 out of engagement with the stop 75 on the shaft 12 of the forward roller 6 thus allowing said shaft 12 and roller 6 to again be rotated.

Arranged under the rollers 6 and 7 are two roller brushes 76 and 77 each roller being provided with a guard 78 which prevents portions of the leaf from entering between the brush material, said rollers being for the purpose of brushing the rollers in order to remove any particles of leaf or foreign matter which might adhere to the rollers 6 and 7, said rollers being driven by a suitable belt 79 as shown in Fig. 4.

Arranged under the reciprocating table 67 are two belts 80 which form an apron, said belts passing over suitable drums 81 at the forward portion of the machine while the forward roller 6 is provided with two wide grooves 82 to receive said belts 80. Arranged under said belts 80 on suitable drums 83 at both ends of the machine is an endless apron 84, said apron being driven by means of a gear wheel 85 from a rotating shaft of the machine.

Connected to the treadle lever 30 (Fig. 1) is a horizontal arm 86 having an extension 87 thereon, while the drive wheel 26 is provided with a notch 88 (Fig. 2) within which notch the extension 86 enters as shown in Figs. 1 and 2.

The drums 81 of the belts 80 (Fig. 1) are carried on a lever 89, the free end of said lever being connected to a coil spring 90 in such manner that the tension of said spring normally tends to stretch the belts 80.

Having thus fully described the several parts of my invention its operation is as follows:

As shown in Fig. 2 the reciprocating table 67 is provided on its after edge with a series of sharp pins or tangs 91. When the table is in position shown in Fig. 2 the tobacco leaf illustrated in dotted lines is placed on the table, the operator engaging the leaf on the small sharp pins or tangs 91.

Referring now to Fig. 1 which illustrates the driving belt 28 in dotted lines it will be observed that the roller 29' on the treadle lever 30 is not shown in engagement with said belt. When said roller is in this position the driving belt 28 passes loosely over the periphery of the driving wheel 26, and said belt will not engage said wheel until the treadle 32 has been depressed which throws the roller 29' into engagement with the driving belt 28 as illustrated in Fig. 6. This operation tightens the belt on the driving

wheel 26 causing said belt to grip the periphery of the wheel and drive the same. The operation which throws the roller 29' into engagement with the driving belt 28 also simultaneously releases the locking extension 87 (Fig. 1) from the periphery of the drive wheel 26 throwing said locking extension 87 into position shown in Figs. 5, 6 and 7 thus unlocking the drive wheel and allowing the same to be rotated by the driving belt 28. While the driving wheel is in its locked position as shown in Fig. 1 and the reciprocating table is in its forward position as shown in Fig. 2 the cam roller 65 is in the sudden off set 60 of the cam 59. As the driving wheel starts to rotate the toothed portion of the partially toothed wheel 19 meshing with the pinion 16 (Fig. 12) of the forward roller 6 (Fig. 9), rotates said forward roller, central roller 7 and rear roller 8. During the rotation of these rollers the substantially flat portion 61 of the cam 59 is acting upon the cam roller 65 forcing said roller from the center of the partially toothed wheel 19 which draws the reciprocating table rearwardly to the position shown in Fig. 5. As said cam 59 rotates, the pin 74 engages the flat end 72 on the arm 70 of the pivoted lever 68 (Fig. 13) thus forcing the depending portion 71 into position shown and causing the same to engage the stop 75 on the shaft 12 of the forward roller 6. As this stop is engaged the toothed portion of the partially toothed wheel 19 passes out of mesh with the pinion 16 thus allowing said partially toothed wheel 19 to rotate the distance of the smooth periphery 22 of the partially toothed wheel 19, while the pinion 16 is being engaged and held against rotation by the depending portion 71 of the lever 68. During the rotation of the partially toothed wheel 19 the pin 74 on the cam 59 is carried on to the flange 73 on the arm 69 of the lever 68 engaging said flange and lifting the depending portion 71 out of engagement with the stop 75 on the shaft 12 of the forward roller 6 (Fig. 12). As the depending portion 71 is raised out of engagement with the stop 75 the point 21 of the partially toothed wheel 19 which marks the commencement of the toothed periphery is brought into mesh with the pinion 16, thus again rotating said pinion and the stemming rollers 6, 7 and 8. As the cam roller 65 is passing along the substantially flat surface 61 of the cam 59 the reciprocating table with the leaf thereon is being carried rearwardly to the point illustrated in Fig. 5. The grippers 35 being rotated with the drive wheel 26 are rotated to the point where the stem of the leaf is engaged and as the sections of the gripper 35 straddle the stem the roller 43 on the pivoted section 39 engages the cam 37 (Figs. 3 and 4) which force the sections of the gripper together

causing them to cut and firmly engage the stem. While the reciprocating table is carrying the leaf rearwardly and while the stem is being engaged by the grippers the rollers are locked against rotation by the mechanism described and shown in Figs. 12 and 13. The cam roller 65 having reached the end of the substantially flat portion 61 of the cam the roller starts to travel along the off set 62 which causes the table to momentarily stop while the gripper is engaging the stem. After the gripper has engaged the stem and carries it into position shown in Fig. 6 the cam roller 65 is acting on its cam, draws the table over the forward roller 6 and about midway of the central roller 7 as shown in Fig. 6. When the cam 59, partially toothed wheel 19 and lever 68 are in position shown in Fig. 13 which is locking the stemming rollers against rotation the grippers 35 are in position shown in Fig. 4, while the central roller 7 is also in position shown in Figs. 4 and 8 which is their normal position owing to the coil spring 92 (Fig. 8) which holds the roller 7 in its raised position.

Referring now to Figs. 6 and 9 it will be seen that an extension 93 (Fig. 9) is formed on one of the arms 10 which carries the central roller 7, while a broken ring 94 is provided on the inner side of the partially toothed wheel 19 the end 95 of the broken ring 94 engages the extension 93 (Fig. 4) forcing said extension down which carries the central roller 7 into position shown in Figs. 5, 6 and 7 ducking said roller and allowing the grippers to pass over the same as shown in Fig. 6.

As the pin 58, shown in dotted lines in Figs. 6 and 7, is carried around on the cam 59, said pin engages the arm 57 on the shaft 54 which forces said arm downwardly causing the perforated roller 8 to duck to allow the grippers to pass over the same as shown in Fig. 6. As the grippers are carried out of position shown in Fig. 6 the cam 45 (Fig. 3) engages the arm 46 on the rock shaft 47 which draws the roller 50 out of the path of the grippers and simultaneously releases said roller 50 into position shown in Fig. 7. As the grippers carry the stem over the perforated roller 8 the cam 45 releases the arm 46 allowing the roller 50 to drop back upon the perforated roller 8 as shown in Fig. 7. The tobacco stem being now gripped between the roller 50 and the perforated roller 8 the grippers release the stem as the roller 43 acting on said gripper passes off of the cam 37; thus the stem is carried between the roller 50 and the perforated roller 8.

Referring now to Fig. 4, which illustrates the central roller 7 in its normal position before the stem has been gripped by the grippers, and referring also in this connection to Fig. 2 it will be seen that as the reciprocating

table with the leaf thereon advances the end thereof is carried by the belts 80 between the rollers 6 and 7 as the belts 80 passing over the roller 6 guide the end of the leaf between the rollers when the rollers are in position shown in Fig. 4. As soon as the grippers have engaged the stem the central roller 7 is ducked as shown in Fig. 5 and as heretofore described; and as the grippers advance with the stem the reciprocating table advances into position shown in Fig. 6 which causes a fold to be made in the leaf as shown in Fig. 6, said fold in the leaf causing the stem to be withdrawn from the leaf without any portion of the leaf adhering to the stem. The entire leaf passes between the rollers 6 and 7 and is deposited on the apron 84 which carries the stem to the apron of the machine and drops it into any suitable receptacle. As soon as the leaf has been stemmed the grippers are again brought into position shown in Fig. 4 the reciprocating table is brought back into its first position by means of the cam roller 65 acting on the surface of the cam 59. The table is then ready to receive the next leaf and the operation of stemming the same is repeated.

In order to stop the machine the pressure is relieved from the treadle 42 (Fig. 1) which permits the locking extension 87 to contact on flange of driving wheel, and when the cut away portion of the flange comes opposite the locking extension 87 said locking extension enters the cut away portion of the flange by action of spring on treadle, thereby locking driving wheel 26 and at the same time permitting the belt to straighten and become slackened, which disengages the driving belt 28 from the driving wheel 26.

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

1. In a tobacco stemming machine the combination of a reciprocating table, a traveling apron, a pair of rollers between which the leaf to be stemmed is carried, a gripper for engaging the leaf and for putting a fold in the same, said reciprocating table acting in conjunction with the said rollers for holding the fold in the leaf, substantially as described.

2. In a tobacco stemming machine the combination of two rollers, means for leading a leaf to be stemmed between said rollers, a gripper for gripping the stem of the leaf and for folding the leaf while the same is being stemmed, substantially as described.

3. In a tobacco stemming machine the combination of two rollers, means for leading a leaf to be stemmed between said rollers, a gripper for gripping the stem of the leaf, a pair of rollers for engaging the stem after the same has been gripped, and means

for holding a fold in the leaf while the leaf is being stemmed, substantially as described.

4. In a tobacco stemming machine the combination of two rollers, means for leading a leaf to be stemmed between said rollers, a gripper for gripping the stem of the leaf, means passing over said rollers for holding a fold in the leaf while the same is being stemmed, substantially as described.

5. In a tobacco stemming machine the combination of two rollers arranged to receive a leaf to be stemmed, a gripper for gripping the stem of the leaf, and means for holding a fold in the leaf while the leaf is being stemmed, substantially as described.

6. In a tobacco stemming machine the combination of two rollers to receive a leaf to be stemmed, a gripper for gripping the stem of the leaf, and two rollers to receive the stem after the same has been released by the grippers, the whole arranged in such manner that the leaf passes between the first mentioned rollers and the stem passes between the last mentioned rollers, substantially as described.

7. In a tobacco stemming machine the combination of a reciprocating table to receive a leaf to be stemmed, a pair of rollers between which the leaf to be stemmed is led, a gripper for gripping the stem of the leaf, means for moving said reciprocating table over said rollers to hold a fold in the leaf while the leaf is being stemmed, substantially as described.

8. In a tobacco stemming machine the combination of a reciprocating table to receive a leaf to be stemmed, a pair of rollers between which the leaf is led, a gripper to grip the stem of the leaf, means for momentarily stopping the table while the gripper is gripping the leaf, means for moving the table over said rollers to hold a fold in the leaf while the leaf is being stemmed, substantially as described.

9. In a tobacco stemming machine the combination of a reciprocating table to receive a leaf to be stemmed, two rollers between which the leaf to be stemmed is led, a gripper for gripping the stem of the leaf, means for momentarily stopping said table while the stem is being engaged by the gripper, means for moving said table over said rollers to hold a fold in the leaf, a pair of rollers to receive the stem after the same has been gripped by the grippers, the whole arranged in such manner that the leaf passes between the first mentioned rollers and the stem passes between the last mentioned rollers, substantially as described.

10. In a tobacco stemming machine the combination of a reciprocating table to receive a leaf to be stemmed, a pair of rollers between which the leaf is led, a pair of rollers to receive the stem, a gripper for

gripping the stem of the leaf and for leading the stem to said last mentioned pair of rollers, substantially as described.

11. In a tobacco stemming machine the combination of a reciprocating table to receive a leaf to be stemmed, a pair of rollers, a traveling apron passing between said rollers to lead the leaf thereto, a gripper for gripping the stem, and means for moving said table over said rollers to hold a fold in the leaf while the leaf is being stemmed, substantially as described.

12. In a tobacco stemming machine the combination of two rollers to receive a leaf to be stemmed, a gripper for gripping the stem of the leaf, means for causing one of said rollers to duck to allow the gripper to pass over the same, a pair of rollers associated with said first mentioned rollers to receive the stem after the same has been gripped by the grippers, substantially as described.

13. In a tobacco stemming machine the combination of two rollers to receive a leaf to be stemmed; one roller being arranged higher than the other, a gripper for gripping the stem of the leaf, means for ducking one of said rollers to allow the gripper to pass thereover, a pair of rollers associated with the first mentioned rollers, and means for moving one of said rollers out of the path of said gripper, and means for causing said last mentioned rollers to engage the stem, substantially as described.

14. In a tobacco stemming machine the combination of a pair of rollers to receive a leaf to be stemmed, a gripper for gripping the stem of the leaf, a pair of rollers associated with said first mentioned rollers to receive the stem of the leaf after the same has been released by the grippers, one roller of the said last mentioned pair being perforated, substantially as described.

15. In a tobacco stemming machine the combination of a pair of rollers to receive a leaf to be stemmed, a pair of rollers associated with said rollers, a gripper for gripping the leaf and for leading the stem to said last mentioned rollers, a brush arranged under said first mentioned rollers for brushing the same, substantially as described.

16. In a tobacco stemming machine the combination of a pair of rollers to receive a leaf to be stemmed, a pair of rollers associated therewith to receive the stem of the leaf, a gripper for gripping the stem of the leaf and cutting the same therefrom and for leading the stem to said last mentioned rollers, substantially as described.

17. In a tobacco stemming machine the combination of a pair of rollers to receive a leaf to be stemmed, a gripper for gripping the stem of the leaf, a drive wheel for driving said rollers and actuating said gripper, said drive wheel being provided with a pe-

ripheral groove to receive a driving belt, a treadle associated with said driving wheel, said treadle and driving wheel having interlocking engagement, a roller carried on said
 5 treadle for engagement with the driving belt to tighten the same on said driving wheel, substantially as described.

18. A tobacco stemming machine comprising means for engaging the leaf, a gripper
 10 for engaging the stem and putting a fold in

the leaf, and means for maintaining the fold in the leaf while the leaf is being stemmed, substantially as described.

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

WILLARD D. DOREMUS.

Witnesses:

WM. D. COLT,
 C. M. FORREST.

Correction in Letters Patent No. 933,065.

It is hereby certified that in Letters Patent No. 933,065, granted September 7, 1909, upon the application of Willard D. Doremus, of Washington, District of Columbia, for an improvement in "Tobacco-Stemming Machines," an error appears in the printed specification requiring correction, as follows: In the headings to the specification and drawings the words and figures "Application filed November 27, 1905," should read *Application filed November 27, 1907*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of October, A. D., 1909.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

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