

No. 645,999.

Patented Mar. 27, 1900.

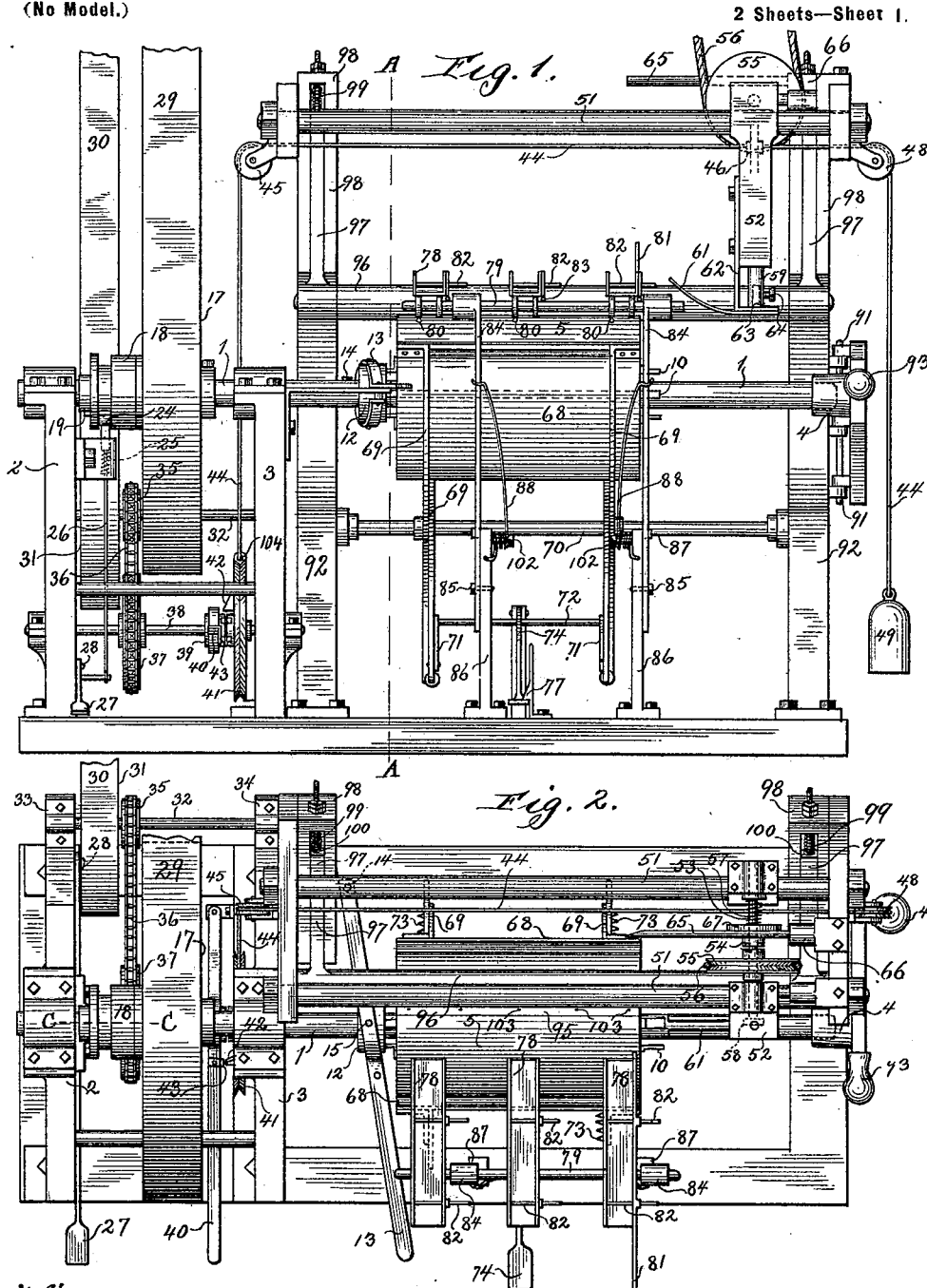
G. A. GAGE.

VENEER COILING AND NAILING MACHINE.

(Application filed July 3, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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George A. Gage,
By *[Signature]*
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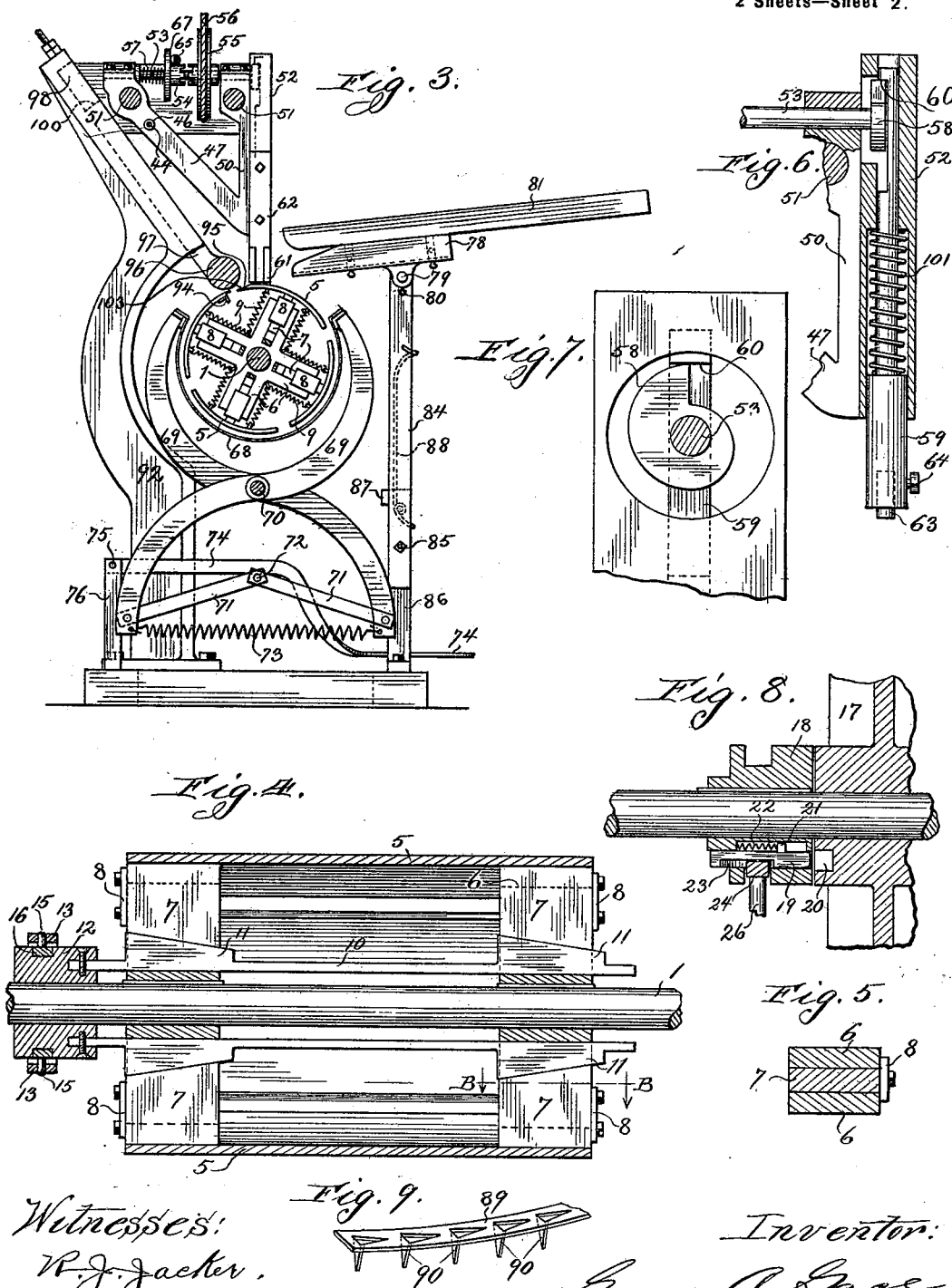
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UNITED STATES PATENT OFFICE.

GEORGE A. GAGE, OF CHICAGO, ILLINOIS.

veneer COILING AND NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 645,999, dated March 27, 1900.

Application filed July 3, 1899. Serial No. 722,688. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. GAGE, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Veneer Coiling and Nailing Machines, of which the following is a specification.

My invention relates to veneer-package-forming machines in which the veneering is wound upon a collapsible drum coacting with an outer pressure-band and in which the overlapping parts of the veneering are fastened together by a traveling nailer coacting with said drum and band.

Prominent objects of my invention are to provide improved means, first, for uniformly expanding and collapsing said drum and rendering same rigid when expanded; second, for operating the pressure-band; third, for operating the drum and nailer in proper relation to each other, and, fourth, for feeding and guiding the veneering and hoops upon the drum.

The minor objects of different features of construction shown will be understood from the following description with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine constructed according to my invention. Fig. 2 is a top plan of same. Fig. 3 is a vertical section on the line A A of Fig. 1. Fig. 4 is a vertical longitudinal section of the drum. Fig. 5 is a horizontal section of one of the arms supporting a segment of the drum and its guide, taken on the line B B of Fig. 4. Fig. 6 is a vertical section of the nailer-casing, showing the plunger therein. Fig. 7 is a side view of part of same, showing the cam for raising the plunger. Fig. 8 is a section on the line C C of Fig. 2, showing the clutch for operating the supporting-shaft of the drum. Fig. 9 is a perspective view of a piece of nailing or fastening strip suitable for said nailer.

In the construction shown the shaft 1 is journaled in the members 2 and 3 of the frame at one end and is steadied by the hinged bearing-piece 4 at the other end. The collapsible drum, consisting of the segments 5 and supporting parts, is mounted on the shaft 1. Said supporting parts consist of the

arms or guides 6, rigidly mounted on the shaft 1, and the arms 7, rigid on the segments 5, and each slidingly seated between a pair of the arms 6. The plates 8 are secured to the outside of the arms 7 and abut against the guides 6, thus holding the segments against longitudinal movement.

Springs 9 are secured to the guides 6 and to the segments 5 at each end and on each side of said guides. Said springs urge the segments normally inward or normally collapse the drum.

The arms 10 are provided with inclines 11, which coact with the oppositely-inclined ends of the arms 7 in urging the segments outwardly or expanding the drum. The arms 10 are rigidly secured at one end to the sleeve 12, which has a sliding movement longitudinal of the shaft 1 and is secured thereto against relative rotation by means of the arms 10 and guides 6. The sleeve 12 is moved on the shaft by means of the lever 13, which is pivoted to the frame at 14 and is pivoted at 15 to the collar 16, which is seated in a groove in said sleeve 12 in such manner as to permit the revolution of the sleeve 12 and members 10 with the shaft 1.

The pulley 17 is loose on the shaft 1. A collar 18 is rigid on the shaft 1 and connected with the pulley 17 by a clutch arranged to automatically release said collar and shaft from the pulley at the end of each revolution of the shaft.

The form of clutch shown consists of a sliding bolt 19, seated in a suitable recess therefor in the collar and arranged to engage the hub of the pulley when forced into the recess 20 in said hub. Said bolt has a shoulder 21 thereon, against which the spring 22 acts in normally urging the bolt into the recess 20. The bolt also has a cam-shoulder 23, coacting with the member 24, which is normally held by the spring 25 in proper position to cam against said shoulder 23, so as to hold the bolt 19 out of engagement with the hub of the pulley 17. When the member 24 is pulled down through the rod 26 and foot-lever 27, the bolt 19 will engage said hub, and thus cause the shaft 1 to make a single revolution until the bolt is again withdrawn through said cam action. The lever 27 is merely depressed momentarily, the spring 25 acting to

immediately return the member 24 to the proper position to cam with the shoulder 23. The foot-lever 27 is pivoted to the member 2 of the frame at 28.

5 The pulley 17 is connected, through the belt 29, with a main driving-shaft. (Not shown.) Said driving-shaft also connects, through the belt 30, with the pulley 31 on the shaft 32, which is journaled in the members 33 and 34
10 of the frame.

The pulley 35 on the shaft 32 connects, through the belt 36, with the pulley 37 on the shaft 38, which is journaled in the members 2 and 3 of the frame.

15 The shaft 38 has a clutch 39 feathered thereon and slidable longitudinally of the shaft through the action of the lever 40. The pulley 41 is loose on the shaft 38 and arranged to be engaged by the clutch 39 when same is
20 thrown toward the pulley by the lever 40. The pulley is provided with an inclined projection 42, which cams against the projection 43 on the lever for throwing the clutch out of engagement with the pulley at the end of
25 each revolution. The pulley 41 has fixed thereto at 104 a cable 44, which runs over the sheave 45 and attaches at 46 to the arm 47 (see Fig. 3) of the nailer-frame and extends thence over the sheave 48 and has secured
30 thereto a weight 49.

The nailer-frame consists of the arms 47 and 50, rigidly secured together and slidably mounted on the horizontal rods or guides 51. The nailer-casing 52 is rigidly secured to the
35 arm 50. The shaft 53 is journaled in the arms 47 and 50, has the clutch 54 feathered thereon, slidable longitudinally of the shaft, and carries the loose pulley 55. Said pulley 55 is connected, through the belt 56, with the
40 driving-shaft. (Not shown.) The spring 57 normally urges the clutch 54 into engagement with the pulley 55. The shaft 53 has the cam 58 rigid on the end of said shaft in the casing 52. Said casing carries a plunger 59,
45 which has a shoulder 60 resting upon said cam. The spring 101 normally urges the plunger downward in the casing. At the lower end of the casing 52 is a slotted guide 61 for the nailing-strip, supported on the casing by the arm
50 62. The plunger 59 carries a nailing-head 63, which is vertically adjustable by means of the set-screws 64. The arm or rod 65 is rigidly secured to the member 66 of the frame and has its free end beveled to cam against
55 the shoulder 67 of the clutch and throws same out of engagement with the pulley 55. The pressure band or apron 68 is secured to the upper ends of the arms 69, which are arranged in two pairs and pivoted together and to the
60 frame by means of the horizontal shaft 70. Arms 71 pivotally connect the lower ends of the arms 69 with a horizontal rod 72. The spring 73 connects the lower ends of each pair of arms 69 and normally draws same together,
65 so as to raise the rod 72 and urge the upper ends of the arms 69 upwardly and inwardly, and thus tighten the bands 68 against the

drum. The lever 74 is pivoted at 75 to the member 76 of the frame and rests upon the rod 72. The catch 77 is secured to the frame
70 and serves to lock the lever 74 in the depressed position.

The hoop-guides 78 are made in the form of a trough, open at each end, mounted on a cross-piece 79, and may be adjusted thereon
75 longitudinally of the cross-piece and secured by the set-screws 80. The guide 78 at the right has its outer wall raised slightly at 81 to serve as a guide for the main sheet of veneering. The wall at the left of each guide
80 78 is separate from the bottom piece and has a rod 82 rigid thereon and passing through a perforation in the opposite wall, where same is secured by a set-screw 83. The guides
85 78 may be widened by setting said rods toward the left. The cross-piece 79 is rigid on the arms 84, which are pivoted at 85 to the members 86 of the frame. At the upper ends of the members 86 are projections 87, serving
90 as a stop for the arms 84. Each spring 88 is secured at its lower end to one of the members 86 and has its upper end engaging one of the arms 84 and urging same normally against the stops 87. Said springs are coiled
95 around the pivots 102 and so arranged that the arms 84 may be swung down and away from the drum on their pivotal connection at 86, carrying the guides 78 with same.

The nailing-strip shown is made of a sheet-metal strip 89, cut to form the prongs 90. The
100 member 4 is pivoted at 91 to the member 92 of the frame and is provided with a handle 93, whereby same is swung away from the shaft 1. One of the segments 5 has a shoulder 94 secured under its edge, and the ad-
105 joining segment is beveled at 95 to permit the edge of the veneering to be readily inserted against the shoulder 94. Prongs 103 project slightly above said beveled segment and prevent slipping of the veneering. The
110 presser-roll 96 is supported on arms 97, sliding in the members 98 of the frame. The arms 97 are reduced and threaded at their upper ends and provided with nuts resting upon the members 98 and limiting the down-
115 ward movement of said arms. The springs 99 encircle the reduced parts of the arms 97 and act against the shoulders 100 of said arms to normally urge the pressure-roll downward upon the veneering.
120

The operation of my device is as follows: The pulley 17, shaft 38, and pulley 55 are constantly revolved through their connection with the main driving-shaft. (Not shown.) The drum is expanded in the position shown
125 by pulling the lever 13 toward the right, (see Figs. 1 and 2,) the inclines 11 urging the arms 7 of the segments 5 away from the shaft 1 against the action of the springs 9. The lever 74 is released from the catch 77, thus
130 bringing the apron up against the drum. The operator then feeds a sheet of veneering upon the guides 78 and along the guide 81, inserting the edge of the veneering under

the edge of one of the segments and against the shoulder 94 of said segment. The lever 27 is then depressed to release the bolt 19 of the clutch and cause same to engage the pulley 17. This causes the shaft 1 to make a single revolution, the bolt being released through contact with the arm 24 at the end of such revolution. The veneering has now been wound around the drum, so that the ends overlap. The operator now moves the lever 40 toward the right, causing the clutch 39 to engage the loose pulley 41 and revolve same with the shaft 38. The pulley 41 makes a single revolution, winding the cable 44 around same and being released from the clutch by the action of the cam 42 against the projection 43 of the lever. This operates, through the cable 44, to move the nailer-frame 47, with the casing 52 and shaft 53, along the guides 51 toward the left of Figs. 1 and 2. As soon as the shoulder 67 of the clutch 54 is released from the rod 65 the clutch, engaging the revolving pulley 55, will revolve the shaft 53, and thus operate the plunger 59 through the action of the cam 58 and spring 60. When the pulley 41 has been released from the clutch 39, the weight 49 will operate to move the nailer back toward the right until its clutch 54 is released from the pulley 55, when the plunger 59 will cease to operate. Before the nailer is started a nailing-strip 89 is fed upon the guide 61 under the plunger. The plunger will drive the prongs 90 through the overlapping part of the veneering and against the drum, the prongs bending slightly, so as to clench on the inside of the drum. The operator then depresses the lever 74 under the catch 77 to loosen the pressure-band 68 and throws the lever 13 toward the left to collapse the drum. The member 4 is then swung toward the right, free from the shaft 1, and the veneer-package is removed at that end. The guide 81 serves to feed the veneering in proper position on the drum. To form a hooped package, the hoops are fed through the guides 78 and the drum is caused to make an additional revolution to coil said hoops around the package. The arms 84, with the guides 78, are then turned down away from the drum to permit the operator to nail the hoops.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a veneer-coiling machine, the combination of a suitable frame therefor; a rotary shaft journaled in said frame; a series of radial guide-arms 6 arranged in pairs and rigid on said shaft; a series of drum-segments having, rigid thereon, inwardly-projecting arms

each slidingly seated between one of said pairs of guide-arms; the spring on each side of each of said pairs, normally urging the segments inwardly; a sleeve on said shaft, longitudinally movable thereon and secured against relative rotation; a series of rods secured to said sleeve, extending along said shaft, and having cam-faces acting on said inwardly-projecting arms, whereby and through the longitudinal movement of said sleeve, said segments are moved toward or from said shaft; and means for rotating said shaft. 70

2. In a veneer-coiling machine, the combination of a suitable frame therefor; a collapsible drum journaled on said frame; a pair of arms movably secured to the frame and extending, one on each side of said drum; a pressure band or apron having its ends attached to said arms, and extending along and part way around said drum; a spring normally urging said arms upwardly and toward said drum; and means for simultaneously lowering and spreading said arms. 80

3. In a veneer-coiling machine, the combination of a suitable frame therefor; a collapsible drum journaled on said frame; the levers 69 fulcrumed on the frame; the apron 68 supported by the upper arms of said levers part way around said drum; the arms 71 pivoted together and to the lower arms of said levers; a spring normally urging said lower arms toward each other; and a lever fulcrumed on the frame and acting on the arms 71 for depressing same against the action of said spring, whereby the upper arms of the levers 69 are simultaneously lowered and spread apart to release the apron from the drum. 95

4. In a veneer-coiling machine the combination of a suitable frame therefor; a collapsible drum journaled on said frame; a hoop-guiding trough movably secured to said frame, and normally disposed near the upper surface of the drum, and means for urging said hoop-guide into normal position. 100

5. In a veneer-coiling machine, the combination of a suitable frame therefor; a collapsible drum journaled on said frame; an arm pivoted to said frame and carrying a series of adjustable hoop-guiding troughs normally near the upper surface of the drum; and a spring acting between the frame and said arm urging the guides into said normal position. 110

Signed by me at Chicago, Illinois, this 6th day of June, 1899.

GEORGE A. GAGE.

Witnesses:

WM. R. RUMMLER,
GLEN C. STEPHENS.