(No Model.)

2 Sheets—Sheet 1.

W. RABBE.

GLUING AND STAINING MACHINE.

No. 320,816. Patented June 23, 1885.

Fig. 1.

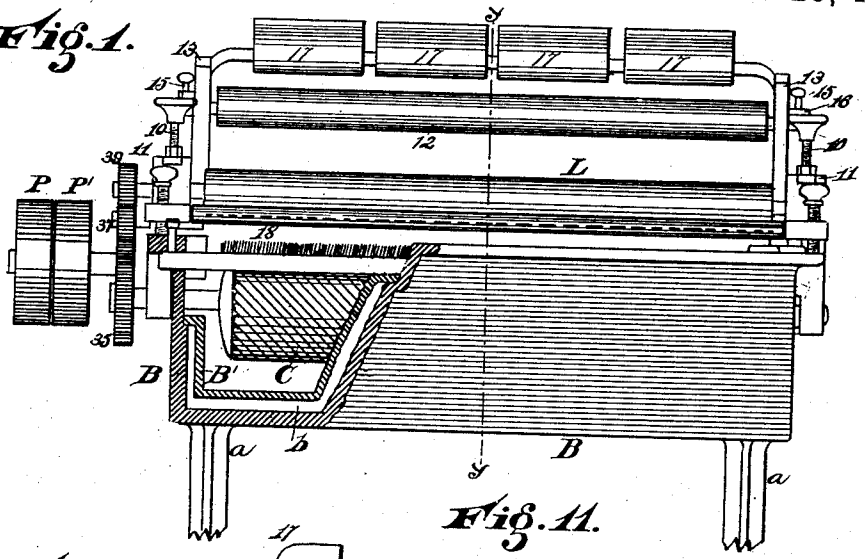


Fig. 11.

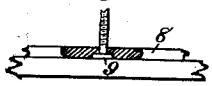


Fig. 3.

Fig. 2.

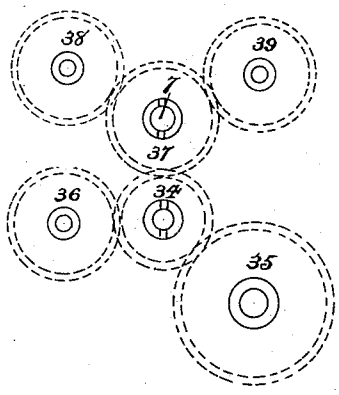
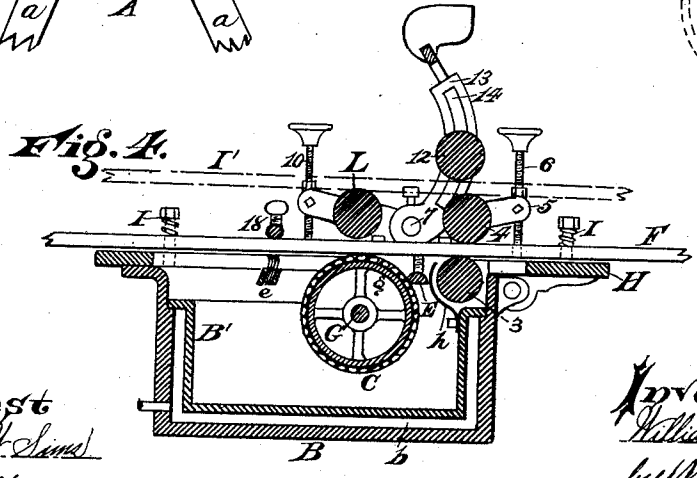


Fig. 4.



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N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

W. RABBE.

GLUING AND STAINING MACHINE.

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Fig. 6.

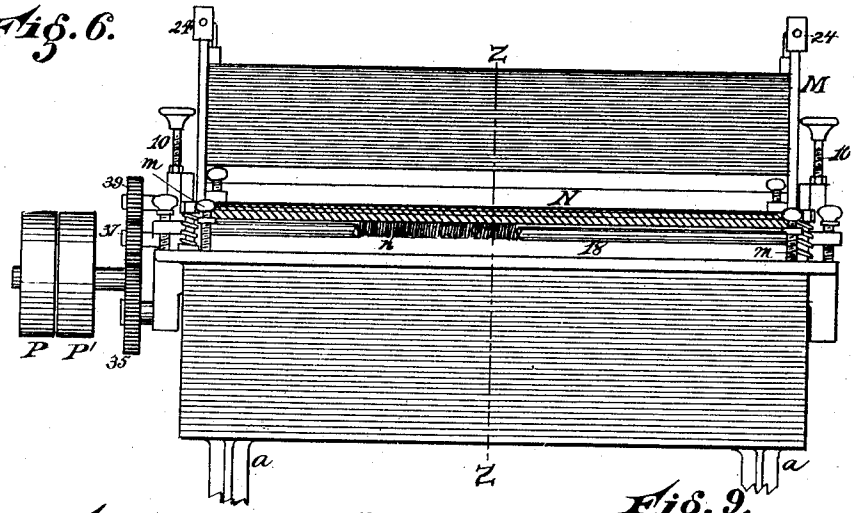


Fig. 7.

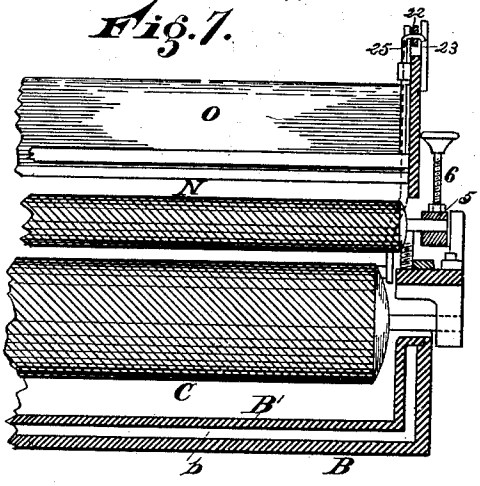


Fig. 9.

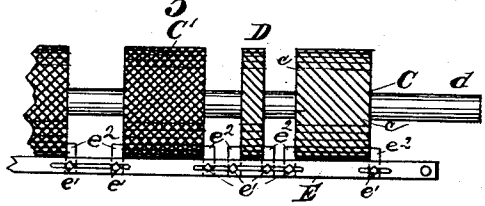


Fig. 10.

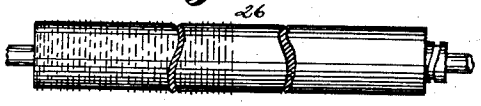


Fig. 5.

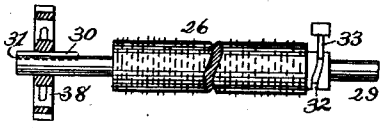
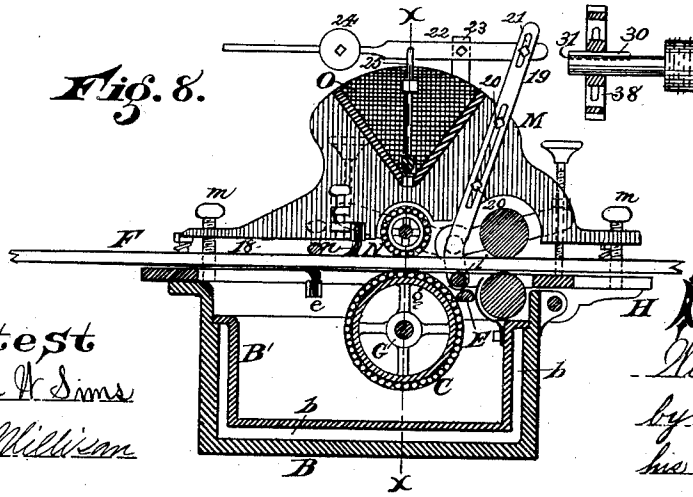


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM RABBE, OF CINCINNATI, OHIO.

GLUING AND STAINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 320,816, dated June 23, 1885.

Application filed January 8, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RABBE, a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Gluing, Staining, and Veneering Machines, of which the following is a specification.

My invention relates to an improved gluing, graining, and staining machine.

One of the objects of my invention is to provide a machine which will glue simultaneously either or both sides of the stick for veneering.

Another object of my invention is to provide a detachable frame carrying a glue-fount and devices for spreading glue upon the upper side of the stuff by the glue-transferring roller, which attachment can be removed to glue upon one side only.

Another object of my invention is to construct a machine so that it can be readily used for graining and staining timber, as well as for gluing the same. The making of imitation grain is accomplished by substituting a graining-roller for a smooth-feeding roller.

Another object of my invention is to provide gluing or staining rollers made up of sections, so as to be adjusted to any desired width, all of which will be fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a rear elevation of my improvement, partly in section. Fig. 2 is a side elevation of the same. Fig. 3 is a diagram of the driving-gears. Fig. 4 is a longitudinal central section on line *y y*, Fig. 1. Fig. 5 is a sectional view of the driving-gear and graining-roller. Fig. 6 is a rear elevation, showing the upper gluing apparatus in position. Fig. 7 is a sectional elevation on line *x x*, Fig. 8. Fig. 8 is a sectional elevation on line *z z*, Fig. 6. Fig. 9 is a plan view of the sectional feeding-roller and scrapers. Fig. 10 is a broken plan view of the graining-roller. Fig. 11 is a detail view of the spring-adjusting roller attachment.

A represents the frame of the machine; *a*, the posts or legs on which the same rests. These may be of any desired form of construction.

B represents the lower glue-fount. *b* represents a space between the inside of the fount B′, and outside B, for the admission of steam or hot water to heat the glue.

C represents a gluing-roller journaled to the frame of the machine, and its lower portion revolving within the glue fount.

In order to readily adapt the lengths of the roller C to the width of the material to be glued, I construct the same of sectional parts, as shown in Fig. 9. These sections slide laterally on the shaft *d*, and may be increased or decreased at pleasure, to suit the width of the material, and these sections may be of any desired width, or several different widths may be used to glue simultaneously different widths of stuff.

I have found by experience that metal rolls can be used to spread the glue when they are provided with a series of fine spiral grooves and projections, as shown at C, Fig. 9; or they may be used in check form, as shown at C′. These grooves C carry up a sufficient amount of glue to cover the surface which is spread to form a uniform coating by means of the brush *e*.

E represents a scraper in front of roller C, and it is adjusted so as to scrape off the surplus glue to prevent too much being carried up onto the lumber F, the face of which is in contact with the roller *c*.

e^2 represents lateral scrapers adjustably connected to the longitudinal scraper E, and they bear against the disks of the sections or rollers to prevent the glue from being carried up against the edge of the lumber. These lateral scrapers e^2 are adjusted readily to the width of the sections of the roller by screw-bolts *e′*.

In order to readily construct these sections so as to be adjustably connected, they are provided with a hub, G, which may be connected to the periphery by a disk, or by arms *g*, to which the periphery D of the roll is secured. These hubs G fit readily onto the shaft *d* and are secured by a set-screw or other appropriate means to allow the sections to be readily moved laterally on the shaft.

3 4 represent feeding-rolls, suitably journaled to the frame of the machine for feeding the lumber F over the gluing-wheel.

h represents a shield or guard placed in front of roller 3 to prevent the glue from coming in contact with the same. These feeding-rollers,

however, may be located in rear of the glue-fount; but it is desirable to get them close up to the gluing-wheel.

In order that the feeding-rolls may be readily adapted to any desired thickness of stuff, feeding-roll 4 is journaled between the adjusting-arms 5.

6 represents an adjusting-screw tapping through arms 5, stepping on the table H.

8 represents a guard which rests upon the table H, and is held down by spring-bolts I, which tap into the table H. The spring seats against the head of the bolt at one end, and the ledge or guard 8 at the other.

The screw-shaft 6 is connected to the ledge or guard 8 by a swiveled head, 9, as shown in Fig. 11. This provision allows the roll 4 to rise or fall conformedly to the surface of the wood, being operated upon by one of the rolls 3 or 4.

The springs I hold the guard 8 down upon the table H, except when subjected to sufficient pressure to compress the springs, which allows roller 4 to yield, as before stated.

10 represents an adjusting-screw similar in construction to the screw 6, which passes through arms 11, to which arms pressure-roller L is journaled, as shown in Figs. 2 and 4. It is placed vertically over the gluing-roll, and holds the stuff down upon it. This roller L likewise serves as a feeding-roller for carrying the stuff backward, as will be hereinafter explained.

It is sometimes desirable after a piece has been glued to place veneer upon it and pass it through squeezing-rolls to secure the parts in position for setting or drying. To accomplish this result I have provided an adjustable roller, 12, journaled between arms 13, which are provided with a segmental slot, 14, into which the journal-boxes of roller 12 are attached, so as to be adjusted up or down by adjusting the screws 15, which tap through the journal-boxes 16, and is stepped upon the arm 5, whereby the squeezing-roll 12 may be adjusted to or from the roller 4 to accommodate the different thicknesses of stuff.

Arm 13 journals on shaft 7 as its center. 17 represents weights hung thereon to hold the squeezing-roller 12 down upon the stuff. These weights may be increased or diminished at pleasure.

I', Fig. 4, represents a piece being passed through the squeezing-rollers.

In order to spread the glue upon the upper surface of the lumber F, I provide the following instrumentalities, which are attached in lieu of a part of the above-described devices: Arm 13 and rolls 12 are detached and removed from the machine. Reservoir-frame M, as shown in Fig. 8, is then secured upon the table H by means of screws *m*, which pass through the flanges or feet of the same.

N, Figs. 7 and 8, represents an upper gluing-roller, constructed in the same manner as gluing-roller C, and journaled to the frame of the upper fount M.

n represents a brush in rear of roller N for spreading the glue evenly over the surface of the stuff.

18 represents a pressure-roller for holding the stuff down upon the table after it has passed through the gluing-roller.

O represents a reservoir or fount, in which the glue is held for supplying the roller N. I have applied devices for automatically opening and closing the glue-fount for supplying the roller. They are constructed as follows: 19 represents arms secured upon each side of the reservoir-frame in such a manner as to rise and fall. I have shown them as secured by screws 20, passing through the slot pierced in said arms. These arms project down upon each side of the stuff a sufficient distance to serve as bearings for a pressure-roller, *i*, which journals therein.

21 represents a slot pierced in the upper end of arm 19 to which is adjustably secured a weighted arm, 22, which pivots on standard 23, 24 representing the weight. This weighted arm holds the arm 19 and pressure-roller *i* firmly up against the stuff F, with the weight 24 elevated, which holds open the gate 25, attached to the arm 22. As soon as the stuff F has passed out from under the roller N the weight 24 drops down and carries gate 25 downward, closing the slot or opening in the bottom of the fount and shutting off the escape of glue. When a second piece is introduced, the pressure-roller *i* and arm 19 are pulled down by the operation, and the weighted arm 22 is raised and the glue allowed to flow upon the roller N. These feeding devices may be adjusted to control the width of opening in the fount. This form of fount and gluing-roller may be used in lieu of the roller C for applying the glue upon the surface; but in this case the roller C should be replaced by a pressure-roller or some other suitable means for supporting the stuff opposite the gluing-wheel.

It is sometimes desirable to stain wood for veneering, and this may be done by employing either one of the devices for spreading the stain, as I have shown and described for applying the glue; and in order to imitate grain or emboss any design on the wood, I employ a grain and pressure roller, 26, which is substituted for roller 3. If it is desired to represent any particular kind of wood, then the projections or protuberances upon the rolls are made to conform to the desired imitation or figure to be given to the stuff. Thus I have shown in Fig. 10 small protuberances on one portion of the roller to imitate grains of cedar wood, the other portion being smooth, so that the imitation grain or plain wood may be run through on the same roller at different sides without necessitating the change of rollers to do the two kinds of work.

It is sometimes desirable to give the imitation grain a wavy appearance. To accomplish this I have provided the following instrumentalities: 38 represents a gear-wheel feathered

upon the shaft 29, to which the roller 26 is securely attached. 30 represents the feather, and the dotted lines 31 represent the grooves cut in the shaft, so as to allow the shaft to slip laterally in the hub of the gear. To accomplish this I have provided a cam-groove, 32, chased in the hub of roller 26, into which projects a stem, 33, which is securely attached to the journal-box. As roller 26 is revolved the stem 33, working in cam-slot 32, slides the roller laterally to and fro to give the wavy appearance of the undulations caused by the spurs or projections formed on the periphery.

The plan of driving the several feed, pressure, grain, and gluing rollers is shown in Fig. 3.

34 represents the main driving-gear; 35, driving-gear upon roller C; 36, driving-gear on roller 3; 37, a transmitter journaled upon the shaft or cutter 7, which meshes with gear 38, which drives roller 4, and with gear 39, which drives the gluing-roller N or pressure-roller L. Pressure-roller 12 is run as an idler and not driven by power. These gears are placed upon the ends of the shaft outside of the machine, as shown in Figs. 1 and 6.

P represents a loose pulley; P', a pulley keyed upon the shaft for driving the main gear 34.

I claim—

1. In a gluing or staining machine, the combination of the distributing-drum having its periphery provided with spiral grooves, the feed and pressure rollers arranged in advance of said glue-distributing drum, the scraper or doctor blade acting upon the periphery of the drum and having laterally-adjustable supplementary scrapers, and the stationary brush for smoothing the glue or other substance upon the object to be coated, substantially as described.

2. The gluing-roller C, formed of two or more detachable sections, C' D, adjustably attached to the shafts, substantially as specified.

3. In a gluing or staining machine, the combination of the guide 8, spring-bolts I, arms 5, pressure-roller 4, vertical screw 6, and pivoted arm 13, carrying the adjustable roller 12, with the distributing-roller C and roller L arranged above the latter, substantially as described.

4. In combination with the rollers L and 4, the adjustable arms to which they are journaled yieldingly secured to the table H by the guide 8 and spring-bolts I, substantially as specified.

5. In a gluing-machine, the combination of the gluing-rolls C and N with the gluing-founts O and B, located, respectively, above and below the gluing-rolls, provided with suitable feed-rolls for simultaneously applying glue or stain upon both sides of the material, substantially as specified.

6. In combination with the gluing-fount O and gluing-wheel N, the gate 25, connected to a weighted arm, which is automatically operated by the pressure-roller *i*, working on the under side of the stuff F, substantially as specified.

7. In combination with the gluing-machine adapted to spread glue on the under side of the stuff F, the detachable glue-fount frame M, adapted to work in connection with the gluing-roll N, substantially as specified.

8. In a gluing-machine, the combination, with the feeding-rollers 3, squeezing-roll 4, and gluing-rollers L and C, of the squeezing-roll 12, journaled above and adapted to work in connection with feed-roll 4, whereby the stuff I' is glued by returning to said squeezing-rolls, substantially as specified.

In testimony whereof I have hereunto set my hand.

WILLIAM RABBE.

Witnesses:
ROBERT ZAHNER,
JOSEPH W. SIMS.