

(No Model.)

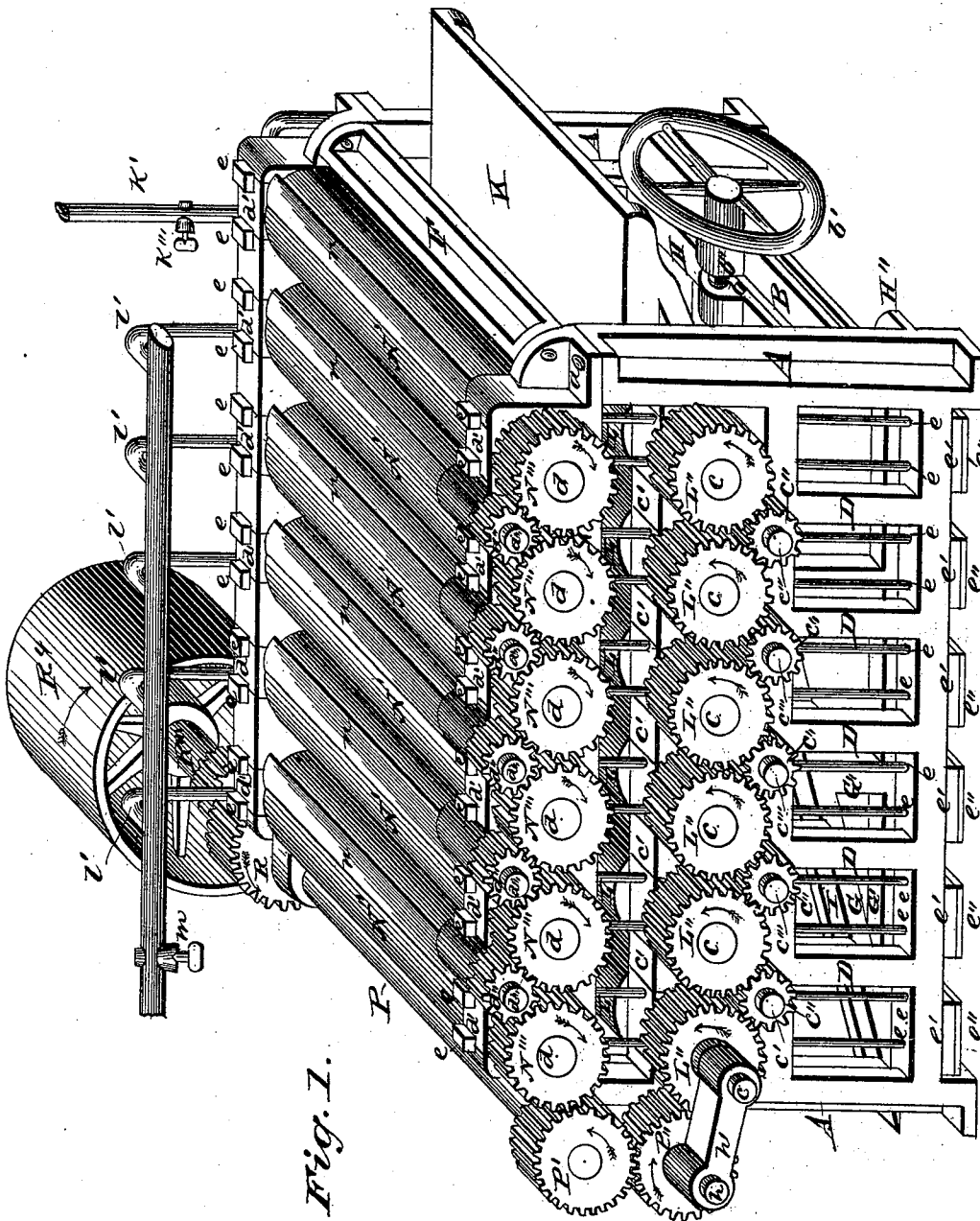
3 Sheets—Sheet 1.

A. C. JOHNSON.

PROCESS OF LAYING VENEERS.

No. 355,322.

Patented Jan. 4, 1887.



WITNESSES:

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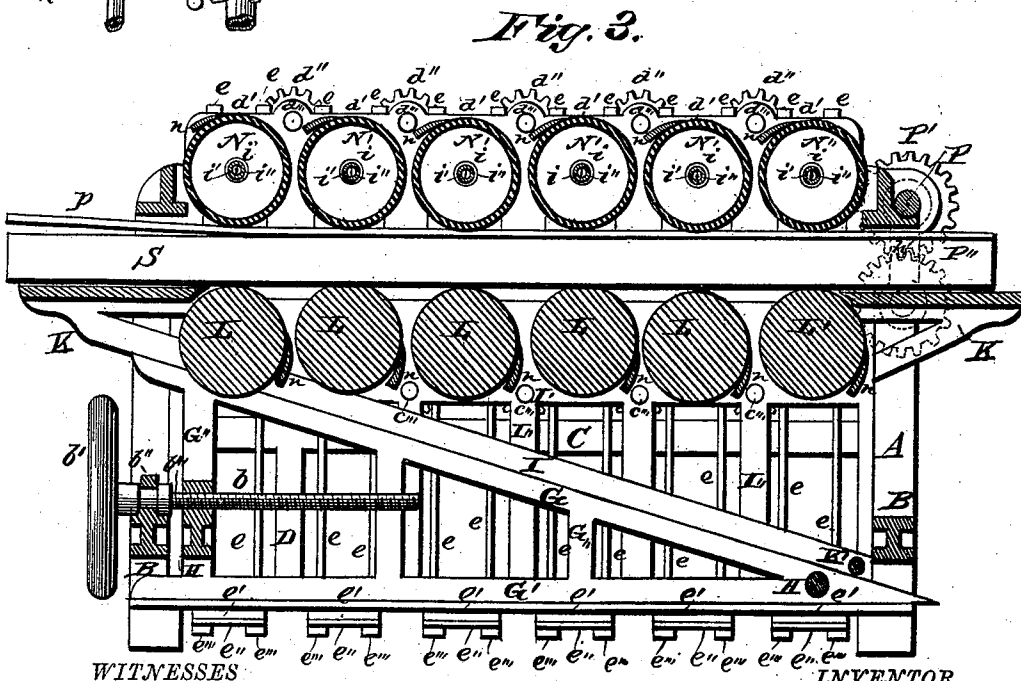
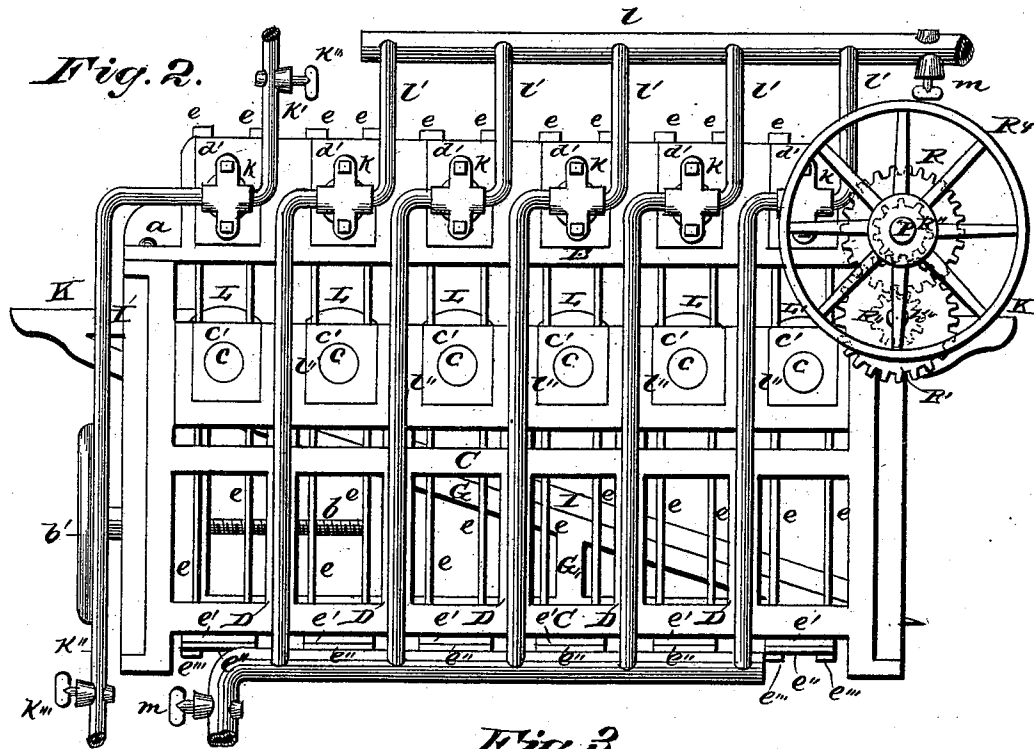
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3 Sheets—Sheet 3.

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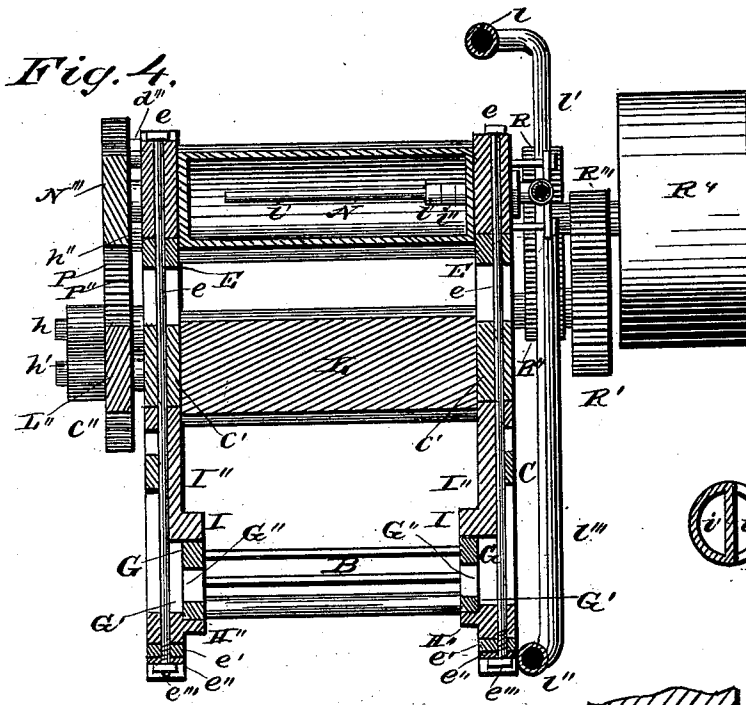
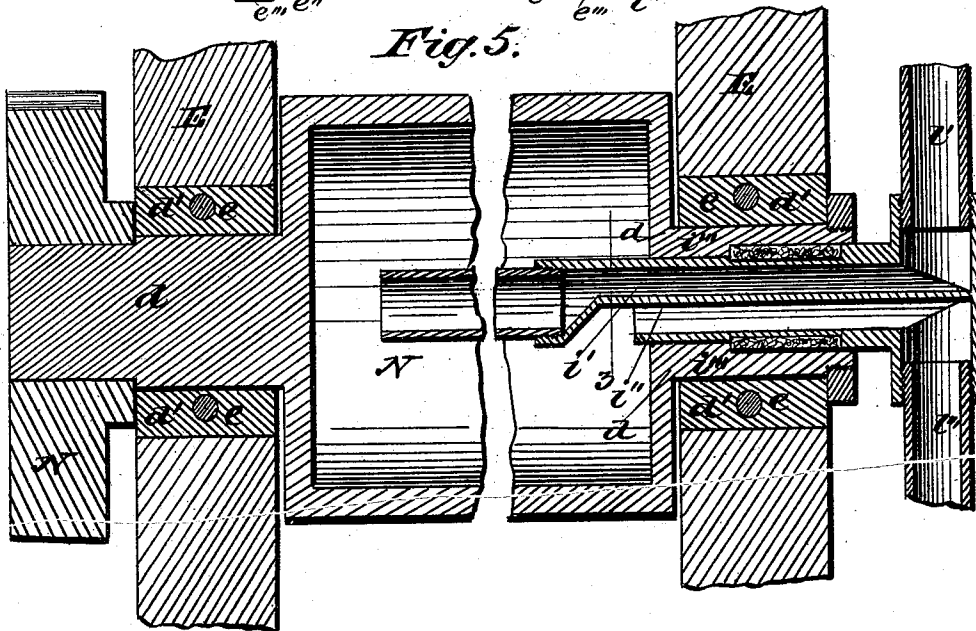


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

ANDREW C. JOHNSON, OF ROCKFORD, ILLINOIS.

PROCESS OF LAYING VENEERS.

SPECIFICATION forming part of Letters Patent No. 355,322, dated January 4, 1887.

Application filed April 27, 1886. Serial No. 200,313. (No model.)

To all whom it may concern:

Be it known that I, ANDREW C. JOHNSON, a citizen of the United States, residing in the city of Rockford, in the county of Winnebago and State of Illinois, have invented new and useful Improvements in the Process of Laying Veneers, of which the following is a specification.

My invention relates to a method for securing veneers to a base.

Heretofore the ordinary method of securing veneers has been to spread the glue or other adhesive substance between the veneer and the base, and to subject the two parts thus joined to pressure.

My improved method consists in first spreading glue or other adhesive matter between the veneer and base, then passing the two parts thus secured under a heated roller to melt the glue and cause it to enter the pores of the wood, and finally passing the connected base and veneer under a chilled roller or rollers to set and harden the glue.

In carrying out my method I preferably employ a machine constructed substantially as described in my application for United States Letters Patent filed October 29, 1885. As said machine is specifically described in said application, I shall here make only such a description of it as will enable those skilled in the art to fully understand my method.

In the accompanying drawings, Figure 1 represents an isometric view of my machine. Fig. 2 is a side elevation opposite to the side seen in Fig. 1. Fig. 3 is a vertical longitudinal central section. Fig. 4 is a section on the dotted line *x x*, Fig. 2. Fig. 5 is a section through one of the upper rolls and its bearings; and Fig. 6 is a detail section on the line *z z*, Fig. 5.

The main supporting-frame of my improved veneering-machine is rectangular in plan, and consists of a lower and an upper section. The lower section of the frame is composed of vertical corner posts, A, horizontal end bars B, horizontal side bars C, and vertical supports D, and the upper section consists of the side E and end bars, F, having a screw-bolt connection with the end portion of the side bars. The upper and lower sections of the supporting-frame are joined to each other by corner bolts, *a*.

A wedge-formed adjusting-frame, rectangular in plan, consisting of like angle side frames composed of inclined bars G, horizontal supports G', and vertical supports G'', having end connections, H and H', is supported on a ledge, H'', projecting inward from the lower side bars of the supporting-frame, and on which it is capable of an endwise movement.

A screw, *b*, with hand-wheel *b'*, is supported to rotate in bearings *b''*, and is provided with collars *b'''*, to prevent endwise movement in its bearings, and the screw *b* has a screw-thread connection with the end connection, H, of the adjusting-frame, by which the frame is made to move endwise back and forth as the screw is turned in one or the other direction.

A wedge-formed roll-supporting frame, rectangular in plan, consisting of like angle side frames composed of inclined bars I, horizontal bars I', having end-table-connections, K, and lower edge end connection, K', is supported within the lower section of the supporting-frame, with its lower inclined edges resting on the upper inclined edges of the adjusting wedge-formed frame.

Carrying-rollers L and L' are supported to revolve on their journal-bearings *c* in the removable box-bearings *c'*, supported at proper intervals in the horizontal side rails, I', of the roll-supporting frame. The journal-bearings *c* of the carrying-rollers L and L' project on one side of the supporting-frame, and their projecting ends are provided with toothed gear-wheel L''. Intermediate gear-pinions, *c''*, are supported to revolve on stud-journal bearings *c'''*, projecting from the horizontal bar I', in such positions relatively with the gear-wheel that the teeth of the gear-pinion shall engage with the teeth of the gear-wheels in working contact, to cause the rollers to revolve in the direction indicated by the arrows on the gear-wheels.

Compress-rollers N, N', and N'' are supported to revolve on their journal-bearings *d* in removable box-bearings *d'*, supported at proper intervals in the side bars E of the upper sections of the supporting-frame.

The journal-bearings *d* of the compress-rollers project on one side of the supporting-frame in the same vertical plane of the projecting journals of the carrying-rollers. The projecting-journal ends *d* of the compress-roll-

ers are provided with toothed gear-wheels N''' . Intermediate or idle-gear pinions, d'' , are supported to revolve on stud journal-bearings d''' , projecting from the side bar, E, in such positions relatively with the gear-wheel that the teeth of the pinions shall engage the teeth of the gear-wheel in working contact, to cause the rollers to revolve in the direction indicated by the arrows on the gear-wheel. The box-bearings of the carrying and compress rollers are supported in position on their respective frames by vertical bolts e , passed through the parts to prevent lateral or endwise movement. The heads of the bolts e rest on the upper face of the bearings of the compress-rollers, and the depending ends extend through elastic cushions e' , and through a metallic plate, e'' , placed on the outside of the cushion, and receive a screw-nut, e''' , to clamp and hold the compress-rollers in a manner to permit of a limited elastic or yielding vertical movement.

A driving-shaft, P, is supported to revolve in bearings in the end of the upper section of the supporting-frame, and on its projecting end, on one side of the frame, is fixed a driving tooth gear-wheel, P' , in such position relatively with the toothed gear-wheel N''' on the delivery-end compress-roll N'' that their gear-teeth shall engage each other in working contact.

An intermediate toothed gear-wheel, P'' , is supported to revolve on a swinging bearing, h , having a yoke-connection, h' , with the projecting journal-bearing c of the delivery-end carrying-roll L' , and on the inside by a yoke, h'' , with the driving-shaft P, in such a manner as to hold the intermediate gear in working contact with the driving-gear P' and the gear L'' of the delivery-end carrying-roll, and permit the series of carrying-rollers L and L' to be raised or lowered and still hold the gear-wheels in working contact.

A toothed gear-wheel, R, is fixed on the driving-shaft on the side of the machine. A counter-toothed gear-wheel, R' , and a counter-toothed gear-pinion, R'' , having a sleeve-connection, are mounted to revolve on a stud-journal, h''' , projecting from the corner post of the frame, in position to place the gear-wheel R and counter gear-pinion R'' in working contact. A driving-toothed gear-pinion, R''' , and a pulley, R'' , to receive a driving-belt having a sleeve-connection, are mounted to revolve on the projecting end of the driving-shaft, and the teeth of the driving-pinion R''' engage the teeth of the counter gear-wheel R. This system of the belt-pulley R'' , driving-pinion R''' , counter gear-wheel R' , counter gear-pinion R'' , and gear-wheel R on driving-shaft constitute a reducing system through which motion imparted to the belt-pulley will be transmitted to the system of carrying and compress rollers, to lessen their velocity and cause them to revolve in the direction indicated.

The compress-rollers N, N' , and N'' are hollow, and their end journals opposite the jour-

nals on which the gear-wheels are fixed are tubular and receive a tubular tube, i , having an induction-opening, i' , extending far into the opening in the roller, and exhaust-openings i'' of less length. The divided tubes i , in their connection with the tubular journals, are fitted to receive a packing, i''' , to produce a steam or water tight joint. A screw-washer, k , is fitted on the projecting ends of the tubular journals, to prevent endwise movement of the rollers. A steam-supply pipe, k' , connects with the induction side of the divided tube in the compress receiving end roll, N, and an exhaust-steam pipe, k'' , is connected with the exhaust side of the divided tube to permit steam to pass through the roll, and these pipes are fitted with stop-cocks k''' to regulate the flow of steam.

A water-supply pipe, l , is provided with branch induction-pipes, l' , connecting with the induction side of the divided tube in their intermediate and delivery-end compress-rollers N' and N'' .

A water-exhaust pipe, l'' , is provided with branch pipes l''' , connecting with the exhaust side of the divided tube in the intermediate and delivery-end compress-rollers N' and N'' . The water-induction pipe l and the exhaust l'' are provided with stop-cocks m , to regulate the flow of water through the rollers.

Knife-edge scrapers n have their ends fixed in the roller-supporting frames in such relative position with the rollers that their knife-formed edges shall engage the periphery thereto, and in the rotations of the rollers operate to remove the adhering particles therefrom. A plank or board, S, with a veneer, p , placed on its upper face, is represented placed between the carrying and compress rollers.

In the use of my improved veneering-machine steam is passed through the receiving end compress roll, and by means of the valves in the supply and exhaust pipes the flow of steam is regulated to properly heat the roll. Cold water is passed through the remaining compress-rollers, and by means of the stop-cocks in the supply and exhaust pipes the flow of the water is regulated to give the required temperature to the rollers. The carrying-rollers, by means of the adjusting-screw, are then adjusted relatively with the compress-rollers to receive the work to be glued with a proper pressure. Motion is then imparted to the rollers by means of a belt-connection of its belt-pulley with a prime mover. Glue is then spread upon one or both of the surfaces to be joined, which are then placed together and are then passed through the machine between the carrying-rollers, with the veneer in contact with the compress-rollers, and upon entering the machine the veneer side will engage the heated roller, which will cause the glue to enter the pores of the wood, and the compression will force the glued surfaces in contact, and in its passage under the water-cooled roller the glue will be chilled and surfaces fixed to each other. In this process portions

of the glue will be forced from the edges of the work, and will to some extent be received by the rollers, and in their rotations will be removed therefrom by the knife-edge scrapers.

5 In this instance I have employed but one hot roll. Others, however, may be employed, and any number of rollers more or less than shown may be employed to adapt the machine to the work required.

10 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The method, as herein described, of securing a veneer to its base, consisting of spreading

glue or other adhesive matter between the veneer and the base, passing the two secured parts under a heated roller to melt the glue and cause it to enter the pores of the wood, and finally passing the connected base and veneer under chilled rollers to harden and set the glue and prevent the warping or shrinking of the veneer consequent upon a gradual cooling or drying of the glue, substantially as described.

ANDREW C. JOHNSON.

Witnesses:

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JACOB BEHEL.