

JOHN W. & JOSIAH W. SHERWOOD.
VENEERING MACHINE.

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JOHN W. SHERWOOD AND JOSIAH W. SHERWOOD, OF GRAND RAPIDS,
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VENEERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 364,681, dated June 14, 1887.

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To all whom it may concern:

Be it known that we, JOHN W. SHERWOOD and JOSIAH W. SHERWOOD, both of the city of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Veneering-Machines, of which the following is a specification.

The invention relates to machinery for wrapping or forming veneer, paper, or other material around a central core, as in the manufacture of carriage-bow sockets, (shown in re-issued Patent No. 10,422 to S. H. Raymond, December 11, 1883,) or forming the veneer into tubes for various purposes. Heretofore such forming or wrapping has been done by hand manipulation, the work being accomplished slowly, and the finished article frequently imperfect in form from lack of uniform pressure upon said veneer or paper throughout its entire length; also from lack of any means of straightening the inner core during the process of wrapping. We are aware, however, that sheet metal and paper have been wrapped around cores by machinery comprising rolls for operating upon the material.

The object of our invention is to provide a system of rolls and supporting and actuating devices, hereinafter described, to operate upon the work simultaneously from end to end of the same with uniform pressure throughout and at the same time straighten the central core during the operation.

The invention comprises means for rotating a core to which is attached the edge of a suitable piece of veneer, paper, or other material, and arranging a number of suitable rolls parallel to and in contact with said core, said rolls being mounted in movable bearings, and forced into contact with the said core by means of springs or weights, or both, as hereinafter more fully set forth.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a front elevation of a machine embodying our invention, a portion of the starting and stopping mechanism being omitted; Fig. 2, a section plan below the line *xx* in Fig. 1; Fig. 3, a detail perspective of the bear-

ings L L, Fig. 1; Fig. 4, a side elevation of the machine, showing the means provided for controlling the rotation of the work; Fig. 5, a driving-pin used in making carriage-bow sockets; Fig. 6, a carriage-bow socket as it appears when the wrapping process is about completed; Figs. 7 and 8, a driving-pin and tube for producing hollow work.

The frame of our device consists of two pairs of vertical timbers, A A, grooved on their adjacent sides and secured parallel to and at proper distance from each other by beams B B B'.

C is the driving-spindle, which is journaled in suitable bearings, 1 1, and having a suitable socket to receive the pin G, and rotated by means of the pulley D, actuated by the belt E, or by the hand applied to the crank F.

H is a back center arranged to rotate in bearings 1' 1', and forced forward by a non-rotating center, H', actuated by a spring, I, and supported in bearings 1'' 1''.

K K K' are rolls, which may be tapered more or less to conform to the taper of the work to be operated upon, and provided with journals at each end. The rolls K K are mounted in bearings L L, which are secured to the ends of a spring, 2, which is secured at the middle to the bar 3, which is attached at each end to guide-blocks 4 4, which are free to move vertically in the grooves in the uprights A A. The bar 3 rests upon cams 5 5, which are pivoted within recesses in the beam B'. Said cams are also coupled together by the bar 6, and are actuated by means of the cords 7 7, weight W, and treadle 8. The roll K' is journaled in the lower ends, respectively, of the weights M M, which move freely in the grooves in the uprights A A. Said weights are sustained by cords 9 9 passing over pulleys 10 10 10 and attached to the cam 5. The opposing rolls K K' operate to preserve a pressure upon the veneer during the wrapping operation, and not to center the core, which latter is effected by the spindle C and center H. To secure the best results and cause the veneer to be wrapped evenly and with uniform pressure, as well as to avoid straining the spindles on which the core is supported, two or more rollers should be arranged so as to oppose one another, in

order that the pressure be not all in the same direction.

Each of the bearings L L consists of a yoke or frame, 11, Fig. 3, secured to the spring 2. Within an opening in the bottom of said frame are pivoted upright arms 12 12, provided at their upper ends with suitable bearings for the journals on the rolls K K. A rod, 13', passes through suitable holes in the ends of the yoke 11 and the arms 12 12. Upon said rod and between the said yoke and arms are placed springs 13 13.

The belt E, Fig. 4, is of such length that when slack the machine will not be moved. Said belt may be driven by any suitable pulley, O, and shaft P. Upon said shaft P is pivoted an arm, 14, upon the end and at one side of which is journaled a loose pulley, 15. To the end of said arm is also attached by one end a bar, 16, the other end of which attaches to a brake, 17, which is pivoted to the frame A, the manner of attaching and position of the various parts being as shown in the drawings. A cord, 18, attaches to the arm 14, and, passing over the pulley 19, attaches to the treadle 20.

The driving-pin, Fig. 5, is of suitable form at one end to fit inside the socket of the carriage-bow and at the other end, *g*, to fit the socket in the spindle *c*. At 21 is a projection which abuts against the end of the bow-socket and spindle C, respectively, and at 22 is a hook to engage with a ring, R, in the end of N, Fig. 6, which is a strip of cloth or other suitable stuff. For the rolls K K K' non-rotating bars or scrapers may be substituted, if so desired.

In the manufacture of tubular work the pin G may be prolonged by the portion *e*, and provided with a suitable countersink in the end to receive the center H, as shown by dotted lines at *g*² in Fig. 7, the pin G thus serving as a temporary core from which the outer covering of veneer or other material can be finally removed. This core can be made either round, oval, or otherwise, in accordance with the form of the desired tube. To facilitate the removal of said core or pin G, and to secure the edge of the veneer, a sheet-metal tube, *d*, Fig. 8, is provided, having overlapping edges, as shown, between which the veneer *b* is inserted. The tube *d* is then slipped over the portion *e*, Fig. 7, of the core and the wrapping completed.

The operation of our improvement is as follows: The carriage-bow socket is prepared for wrapping with veneer in the usual way, (by attaching the metal socket to the end of the core and the edge of the veneer to the side of the same, and covering the said veneer with glue or other adhesive material.) One end of the driving-pin G is inserted in the said metal socket and the other end in the spindle C. The center H is next placed in a countersink in the small end of the core, where it is securely held by the pressure of the spring I. Pressure upon the treadle 8 being removed, the weights move and the cams rotate in the direction indicated by the arrows, thus lowering the roll

K' and raising the rolls K K, and bringing them all in contact with the work with greater or less pressure, according to the weight of the weights W and M M. The machine is now started by depressing the treadle 20, when the veneer or other material attached to the core is quickly wrapped about the same. The machine is then stopped, the ring R attached to the hook 22, the machine again started, and the strip N guided by hand to form a spiral around the work, as shown, thus securing the veneer till dry. The work is removed from the machine by depressing the treadle 8, which removes the rolls K K K' from contact with the work, and releasing the center H. All of the said rolls being at either end independently free to recede from the axis of the work, except as resisted by a weight or spring, they will conform to a surface that is not round, and also separate as the work increases in size by added layers of material. The work may also be tapered, in which case the rolls taper to correspond, as in the construction shown, to avoid any slipping of said rolls upon the work. We are thus enabled to manipulate a variety of forms, as well as the carriage-bow socket named. As the said rolls are arranged nearly or quite equidistant about the work, and as their adjacent surfaces are right lines, any curvature in the work is removed and the core is kept straight during the wrapping process, the converging pressure of the three straight rolls compelling the carriage-bow socket or other work also to occupy a straight line.

By depressing the treadle 20 the various parts 14, 15, 16, and 17 are brought into the position shown by the dotted lines, thus starting the machine by means of the tightener 15, of the usual character, applied to the belt E, and at the same time automatically releasing the brake 17. By removing pressure from the treadle 20 the parts, by gravity, assume the position shown, thus automatically applying the brake 17 as the motive power is released, the result being prompt action of the machine.

We are aware that belts are tightened in the manner shown, and that a brake is used to stop machinery; also that rolls are used to force various substances into close contact for various purposes. We do not claim these broadly.

What we claim and wish to secure is—

1. In a machine for wrapping veneer, the combination, with the work-supporting spindle C and its centering devices, substantially as described, of opposing rolls adapted to bear against the work carried by the spindle, bearings for the same, and devices, substantially such as described, for simultaneously moving the bearings of the opposing rolls toward and from the work, as set forth.

2. The combination of the driving-spindle C, rolls K K K', arranged about said spindle, movable bearings for the rolls, a single power device, as the lever 8, and connections, substantially as described, between said device and bearings for advancing and withdrawing

simultaneously the several bearings and rolls at the will of the operator, as set forth.

3. The combination, with the rolls K K, of pivoted spring-controlled arms adapted to oscillate toward or from each other and having bearings for the rolls, supports for the pivots of said arms, and a spring for pressing said supports, arms, and rolls toward the work, substantially as set forth.

10 4. The rolls K K, in combination with the pivoted arms 12 12, springs 13 13, yoke 11, and spring 2.

15 5. The rod 13', in combination with the swinging arms 12 12, having apertures through which said rod passes to support and guide the arms and springs, springs 13 13, and yoke 11.

6. The rolls K K, bearings L L, and spring 2, carrying one of said bearings at each end, in combination with the movable bar 3.

20 7. The movable bar 3, supporting the middle of the spring, having attached the spring 2, supporting the bearings L L and rolls K K, in combination with the cams 5 5, having attached the cords 7 7, bar 6, weight W, and treadle 8.

25 8. In combination with the rolls K K, journaled in movable bearings, as described, the roll K', journaled in the movable weights M M.

30 9. The rolls K K, bearings L L, spring 2, bar 3, guide-blocks 4 4, and cams 5 5, in combination with roll K', weights M M, cords 9 9, and pulleys 10 10 10.

10. In combination with the cams 5 5, bars 6 and 3, spring 2, bearings L L, and rolls K K K', weights M M, cords 9 9, and pulleys 10 10 10, the cords 7 7, weight W, and treadle 8.

11. The pin G, in combination with the center H and spindle C.

12. The pin G, having the projection 21, in combination with the spindle C and center H.

13. The pin G, having the hook 22, in combination with the ring R and the strip N.

14. The pin G, having the hook 22, in combination with the spindle C, center H, ring R, and strip N.

15. The rotating center H, in combination with the non-rotating center H' and spring I.

16. The bar 16, in combination with the arm 14, pulley 15, brake 17, the core-actuating devices, and the pressing-rolls, substantially as set forth.

17. The tube d, adapted to hold the veneer, in combination with the pin G e, substantially as set forth.

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Witnesses:

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