

(No Model.)

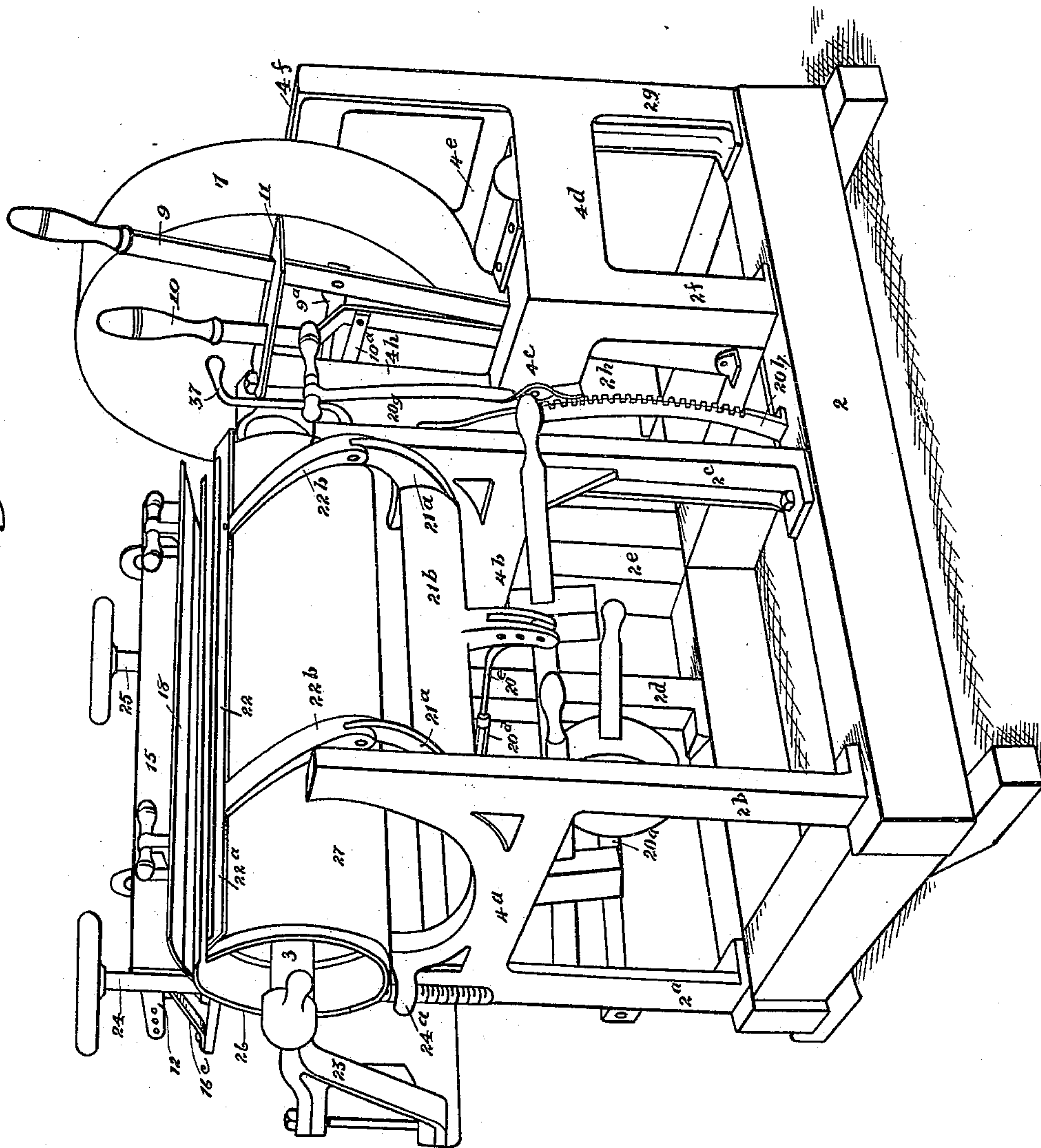
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J. K. McCAHILL.
MACHINE FOR WINDING VENEER PACKAGES.

No. 547,125.

Patented Oct. 1, 1895.

Fig. 1.



WITNESSES
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(No Model.)

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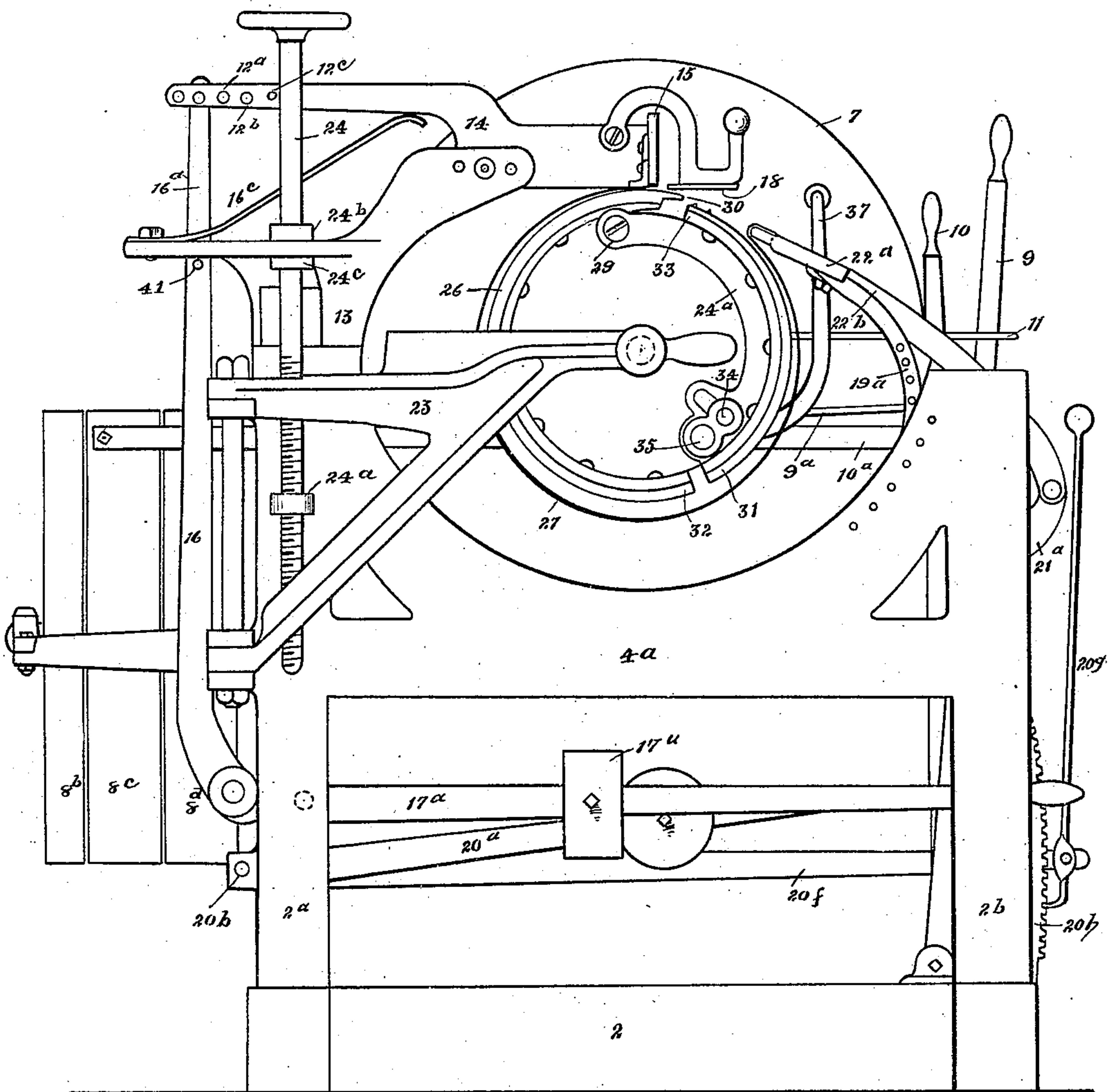
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Fig. 2.



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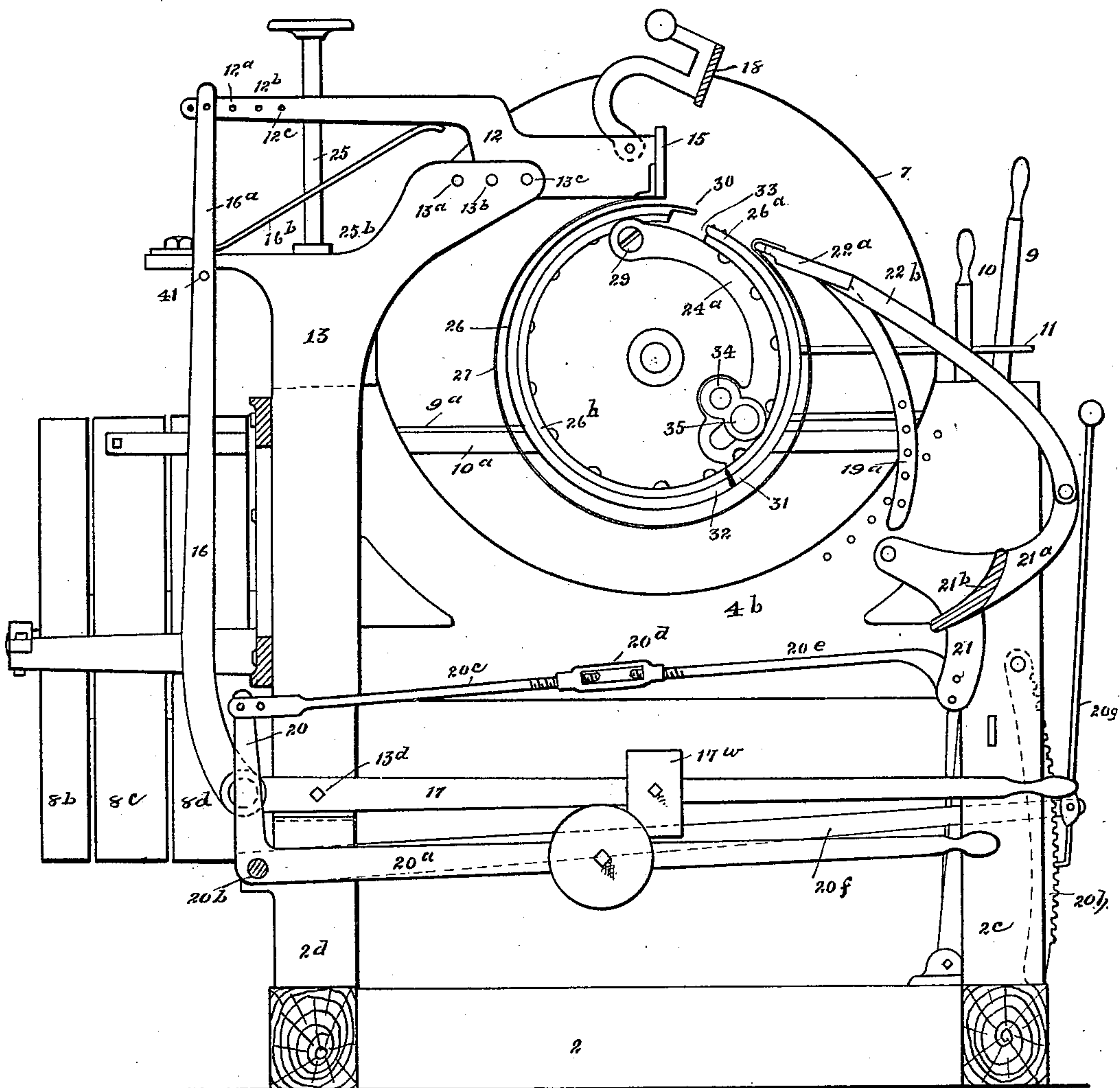
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN K. McCAHILL, OF DETROIT, MICHIGAN.

MACHINE FOR WINDING VENEER PACKAGES.

SPECIFICATION forming part of Letters Patent No. 547,125, dated October 1, 1895.

Application filed June 11, 1894. Serial No. 514,164. (No model.)

To all whom it may concern:

Be it known that I, JOHN K. McCAHILL, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Machines for Winding Veneer Packages; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to machines for making packages of thin wood, and relates to that class of machines in which a cylinder or drum of thin wood of one or several thicknesses is wound upon the drum of the machine, fastened and secured in shape, and then removed from the drum of the machine for further completion or for use, as may be desired.

The especial object of the invention relates to improvements in the means for catching and holding the first end of thin wood inserted between gripping-surfaces on the winding-drum; improvements in the drum itself, by which its size is varied between the time it is used for winding and the time when it is still and it is desired to remove the already-completed or partially-completed package from the drum; improvements in the means of holding the strip of thin material to place during its progress of winding, and improvements which relate to modifications or adjustments of the various parts to accommodate winding-drums of different diameters. Other matters of improvement will be referred to and pointed out in the claims.

In the drawings, Figure 1 is a perspective of my improved machine. Fig. 2 is an end elevation as seen from the left of the machine shown in Fig. 1. Fig. 3 is an end elevation seen from the same end, but with the frame part at the extreme end removed in order that the levers located between the two frames may be shown. In this view some parts of the framework are shown in section.

2 indicates a bed or frame upon which the upright parts of the framework are secured. 2^a, 2^b, 2^c, 2^d, 2^e, 2^f, 2^g, and 2^h indicate the standards rising from the bed-frame 2 and supporting the principal parts of the machine.

4^a and 4^b indicate the girders at the upper ends of the standards 2^a 2^b and 2^c 2^d. The upper sides of these girders are curved substantially concentric with the center of the main shaft 3 and furnish supporting points for some of the levers.

4^c and 4^e are cross-girders joining the standards 2^e and 2^f and 2^g and 2^h.

4^d is the longitudinal girder joining 2^f and 2^g, and a corresponding girder joins 2^e and 2^h. From the middle of the cross-girder 4^c rises a vertical standard 4^h, and the upper ends of 2^g and 2^h are united by a cross-girder 4^f, which, together with the vertical standard 4^h, furnishes the bearings on which the shaft 3 is supported. On the shaft 3, between 4^h and 4^f, is a worm-wheel, concealed in the drawings under a cover 7, and this worm-wheel meshes with a driving-screw that is supported in bearings on the longitudinal girder 4^d and the corresponding girder at the rear. The screw-shaft extends to the rear of the machine and carries the three pulleys 8^b 8^c 8^d, the middle one of which 8^c is a fixed pulley, and the two outer ones 8^b and 8^d are loose pulleys, one of which carries the direct driving-belt, and the other of which carries the reverse or cross driving-belt, either of which belts can be shifted from its own proper loose pulley to the fixed pulley 8^c. Thus the drum can be driven in either a forward or a reverse direction.

At the rear of the machine, engaging in slideways in the vertical standards 2^a and 2^d, is a bracket 13, and this bracket 13 is adjusted vertically by means of adjusting-screws 24 and 25. The adjusting-screws 24 and 25 are held in bearings on the bracket 13 and traverse threaded lugs, one of which 24^a appears on Fig. 2. The screws themselves are prevented from longitudinal movement with respect to the bracket 13 by the collars 24^b and 24^c (shown on Fig. 2) and similar collars, one of which 25^b is seen on Fig. 3. The upper end of the bracket 13 extends forward toward and above the axis of the shaft 3 and above the periphery of the drum on that axis, and at its upper and forward point it is provided with a number of pin-holes 13^a, 13^b, and 13^c, in any one of which can be, and in one of which is, carried the fulcrum-pin of a lever-arm 12. The bracket 13 carries two of these upward

and forward extending arms and provides a support for two lever-arms, one of which is shown in Fig. 3 at 12, and the other in Fig. 2 at 14. The front ends of the lever-arms 12 14 are united by a yoke 15, to the under side of which is secured one end of an apron 27, preferably made of sheet-steel. The yoke 15 and the apron secured to it extend longitudinally along the entire, or nearly the entire, length of the drum 26. The rear ends of the levers 12 14 are provided with adjusting-holes 12^a 12^b 12^c, and in one of these adjusting-holes engages a pin connecting the lever 12 with the vertical link 16, connected at its lower end with the lever 17. A precisely similar lever is connected in like manner with lever 14, and the levers are pivoted by pins 13^d on the face of bracket 13, with which these rise and fall. On the horizontal levers 17 and 17^a are counterweights 17^w and 17^u. The forward ends of the horizontal levers 17 terminate with hand-grips, by means of which the operator can grasp them, and, lifting on them, can lift the yoke 15 upward. Normally the yoke 15 is held downward by the action of the counterweights 17^w and 17^u and by the action of spring-supports 16^b and 16^c. It is stopped at just the right distance above the drum by pin 41.

To the forward end of the levers 12 and 14 is hinged a presser-foot 18, that normally rests on the drum or on the material winding around the drum in front of the yoke 15. It is provided with hand-grips, so that it can be lifted off and thrown upward and backward, if desired. It acts to hold the in-feeding sheet of thin veneer in contact with the drum with a pressure depending upon its weight, and should there be a flaw or sliver in the veneer it prevents the veneer from splitting farther back. A sheet-steel apron bends around the drum, and its forward end is caught by the end of a lever 22, to which it is secured. The lever 22 is a compound lever arranged to be operated by a system of links and levers either by a hand-grip at the forward end of bent lever 20^a or by a hand-grip at the upper end of a pawl-arm that is secured to the forward end or branch 20^e on the same shaft with 20^a. One branch of the lever 22 bends substantially concentric with the drum and is provided with a number of pin-holes, through one of which passes a pin that engages in one of a number of pin-holes on the frame-piece or cross-girder 4^b. There are of course two of these bent arms 19^a, one opposite each end of the drum, arranged to form parallel supports for the yoke 22^a, which unites them and to which is secured the forward end of the sheet-steel apron 27. Another arm 22^b of the bent lever 22 is secured by a pin to an arm 21^a, that reaches out from the rock-shaft 21^b. The other branch or arm 21, reaching out from the rock-shaft 21^b, is secured to the forward end of a link that connects the rock-arm 21 with the vertical branch 20 of a bent lever 20^a. The link uniting 21 and 20 is made in two

parts 20^c and 20^e, between which is interposed a turnbuckle 20^d, thus enabling the location of the yoke 22^a to be regulated with respect to the drum. To the shaft 20^b, upon which the bent lever 20 and 20^a is keyed, is also keyed an arm 20^f, which carries on its forward end a pawl 20^g, that engages with a nearly vertical rack 20^h, the rack being circular and concentric with the shaft 20^b. The upper end or branch of the pawl 20^g is provided with a hand-grip, by means of which the hook of the pawl may be disengaged from the rack and the pawl and the lever 20^f lifted, and this, acting through the system of levers and links described, will withdraw the yoke 22^a from the drum and open out the steel apron.

9 and 10 indicate the belt-shifting levers, which are connected by suitable reach rods or links 9^a and 10^a with the belts passing over the pulleys. The levers themselves are secured or pinned in any proper way to the frame, and held at their upper ends by a slotted guide 11 in a way common with levers of this class used for this purpose.

After a package has been wound upon the machine it is necessary to remove it, and to do so it is necessary to slip it endwise from off the drum. For this purpose one end of the drum must be free or capable of being made free from bearings. I accomplish this result by means of a swinging bracket 23, that can be swung into engagement with the end of the shaft, and left in engagement with the end of the shaft during the time a package is winding, and can be swung out of engagement and out of the way of the workman when he desires to remove the package. The drum itself is collapsible. When expanded, it is substantially cylindrical. When collapsed or contracted, one portion of it sinks inward slightly and not only reduces the diameter or peripheral distance of the cylinder, but also opens or spreads the parts which are used to grip the end of the thin sheet of wood. The result is accomplished by mechanism described as follows: The cylinder is divided into two sections or shells, one of which 26^a is secured to a curved arm 24^a, that is hinged or held by a pin 29 to the head 26^b. The pin 29 is just inside of the outer periphery of the drum and just behind the projecting forward edge 30 of the metallic covering which surrounds the drum, this projecting edge 30 being a thin sharp edge which projects forward a short distance and under which can be inserted the end of a thin sheet of veneer to be wound. The movable part of the drum, swinging on the pin 29 expands outward until the periphery around both parts is nearly or substantially circular. The edges 31 and 32 separate from the position shown in Fig. 3 to the position shown in Fig. 2 when the periphery expands and the edge 33 rises upward toward the edge 30 until it grips with considerable force against the thin sheet of veneer inserted under the edge 30 and lying over the edge 33

in a position substantially tangential to the circumference of the drum. The means for locking the drum in either its expanded or its contracted position consists of a cam-lever 34

5 35. 35 indicates the shaft on which the lever turns, and 34 indicates a wiper that engages with a cam-slot in the arm 24^a. The cam-slot is substantially triangular or club-shaped in outline, such that the lever 34 may have freedom of movement with respect to the shaft 35, but is compelled to act under the wiping action of the cam 34. The cam 34 is secured to the shaft 35 in any suitable way and extends along the axis of the shaft 35 only sufficiently
15 far to engage with the arm 24^a. A similar wiper-cam is used at each end of the drum engaging with the two similar arms 24^a, and both of them are operated by means of a crank 37. (Seen on Fig. 1.)

20 The pin 29, which is the pintle upon which the collapsing part of the drum swings, is located behind the edge 30, and it is also inside of (toward the center) the periphery of the main or fixed part of the drum. When
25 the drum expands, 31 and 32 separate and the edges 30 and 33 draw together, though not to so great an extent as the former separate; also, the edges 31 and 33 move outward from the main shaft, the outward motion of the
30 edge 33 being greater than the outward motion of the edge 31. While an analysis of the entire movement of the movable section is somewhat complex, the result is that the entire section in expanding moves outward from
35 the main shaft, and at the same time moves slightly around the main shaft, so as to pinch a thin sheet of veneer, if such a sheet is placed between the edges 30 and 33 in collapsing; on the contrary, the entire movable part falls
40 inward, allowing the package to be easily renewed.

The drum may be removed and a drum of larger or smaller size substituted readily in this device, as the levers which carry the
45 apron are capable of adjustment through a considerable distance, and the only limit in the size of the drum that can be employed is practically the circle at the upper side of the girder 4^b. Of course if there is a large variation in the size of the drum used it may be
50 necessary to change also the steel apron, but the radial distance between the center of the shaft and the yoke 15, and the radial distance between the center of the shaft and the yoke
55 22^a is capable of adjustment to so great an extent that the machine is adapted to a wide range of use in respect to the size of drums that can be accommodated by it. The handgrips on levers 17 17^a are held in stirrups
60 when the levers are lifted, and the yoke 15 is lifted off the drum.

What I claim is—

1. In a veneer winding machine, the combination of a drum, an apron adapted to hold
65 veneer to the drum, a forward holder adapted to hold one end of said apron, an adjustable bracket, a swinging holder carried thereby

and adapted to hold the other end of said apron, means for limiting the approach of the swinging holder toward the periphery of the
70 drum, substantially as described.

2. In a machine for winding veneer, the combination of a drum, an apron adapted to hold veneer to the drum, a forward holder for said apron, an adjustable bracket, a swinging
75 apron holder carried thereby, a presser foot hinged to the swinging apron holder and forming a substantial continuation of the apron, substantially as specified.

3. In a veneer winding machine, the combination of a drum, an apron, an upper apron holder, an adjustable bracket supporting the
80 apron holder, a forward apron holder, and a swinging presser foot hinged to the upper apron holder and forming a substantial continuation thereof, substantially as described. 85

4. In a veneer winding machine, the combination of a drum provided with means for securing the end of the veneer to it, an apron and means for holding the two ends thereof,
90 an adjustable bracket upon which an apron holder is supported, a stop limiting the range of motion of the apron holder with respect to the bracket, substantially as described.

5. In a veneer winding machine, the combination of a drum, an apron, an upper holder
95 hinged to an adjustable bracket, means for pressing the upper holder toward the drum, and a stop on the bracket limiting the swing of the apron holder, a swinging presser foot
100 hinged to the upper holder and forming a substantial continuation of the upper end of the apron, an adjustable forward apron holder, and a rest adapted to sustain the forward
105 apron holder, substantially as described.

6. In a veneer winding machine, the combination of a drum, an apron, an upper holder for one end thereof, means for pressing said upper
holder toward the drum, and a stop limiting its approach to the drum, a swinging presser foot
110 hinged to the upper holder and adapted to form a substantial continuation of the upper end of the apron, an adjustable apron holder, and an adjustable rest adapted to sustain the
115 forward apron holder, substantially as described.

7. In a veneer winding machine, the combination of a drum, an apron, an adjustable upper apron holder, means for forcing the upper
120 end of the apron toward the drum, and means for limiting its approach to the drum, an adjustable forward apron holder, and an adjustable rest adapted to receive and limit the outward movement of the forward apron holder,
125 substantially as described.

8. In a veneer winding machine, the combination of a drum, an apron, a swinging upper apron holder provided with counterweights, a
130 swinging forward apron holder provided with counterweights, means for limiting the motion of the upper apron holder toward the drum, and means for limiting the motion of the forward apron holder away from the drum, substantially as described.

9. In an expanding drum for veneer winding machines, the combination of a main part concentric with the main shaft and provided with a projecting edge, a head secured to the main part, a movable part hinged thereto behind the projecting edge whereby the entire outer periphery of the movable part is adapted to drop inward toward the shaft, substantially as described.
10. In a veneer winding machine, the combination of a drum provided with means for securing the end of the veneer to it, an apron and means for holding the two ends thereof, an adjustable bracket upon which the apron holder is supported, a stop limiting the motion of the apron holder with respect to the bracket, and means for pressing the forward end of the apron toward the drum, substantially as described.
- In testimony whereof I sign this specification in the presence of two witnesses.

JOHN K. MCCAHILL.

Witnesses:

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F. CLOUGH.