O. C. FENLASON.

MACHINE FOR USE IN SORTING VENEER.

APPLICATION FILED FEB. 21, 1908.

1,014,819.

Patented Jan. 16, 1912.

6 SHEETS—SHEET 1.

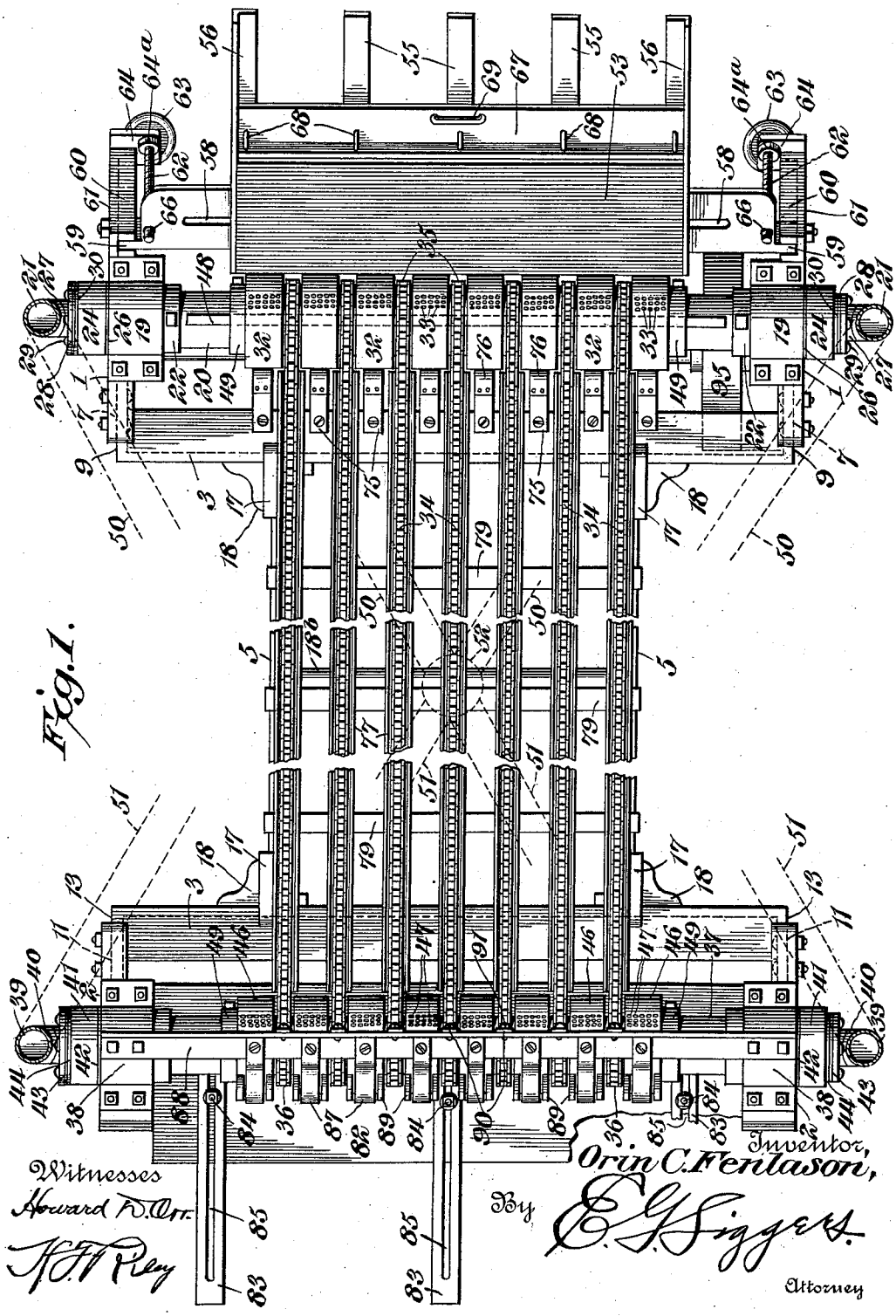

Fig. 1.

Witnesses
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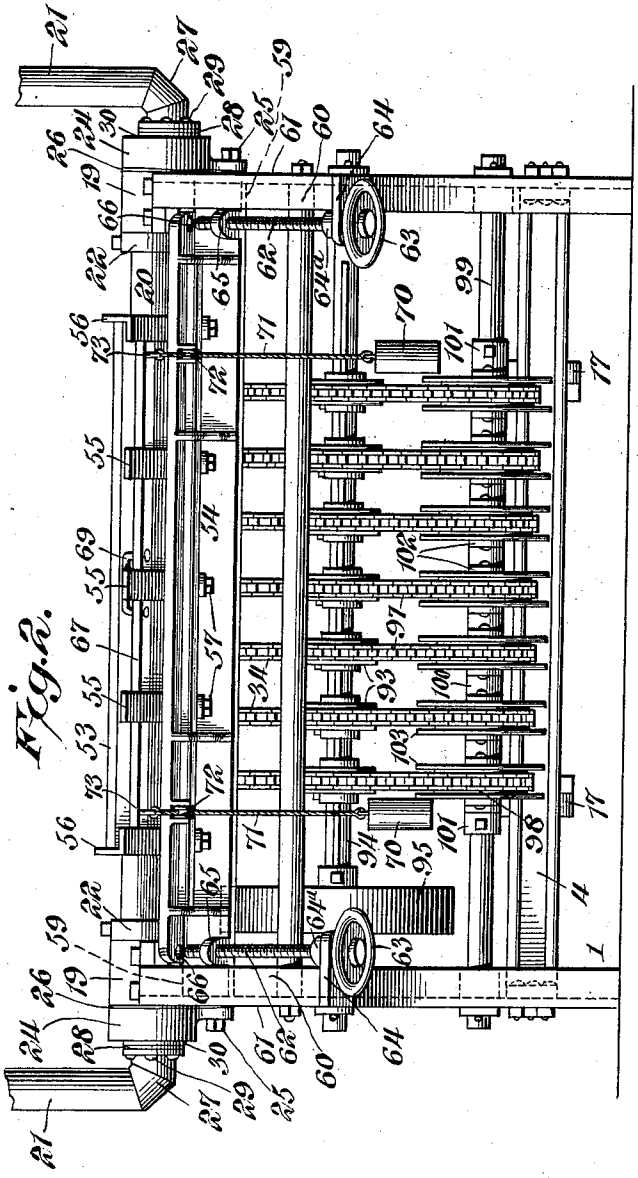

Fig. 2.

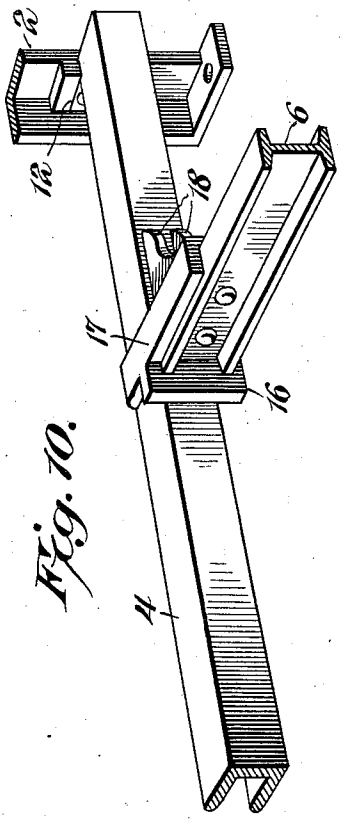

Fig. 10.

Witnesses

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6 SHEETS—SHEET 3.

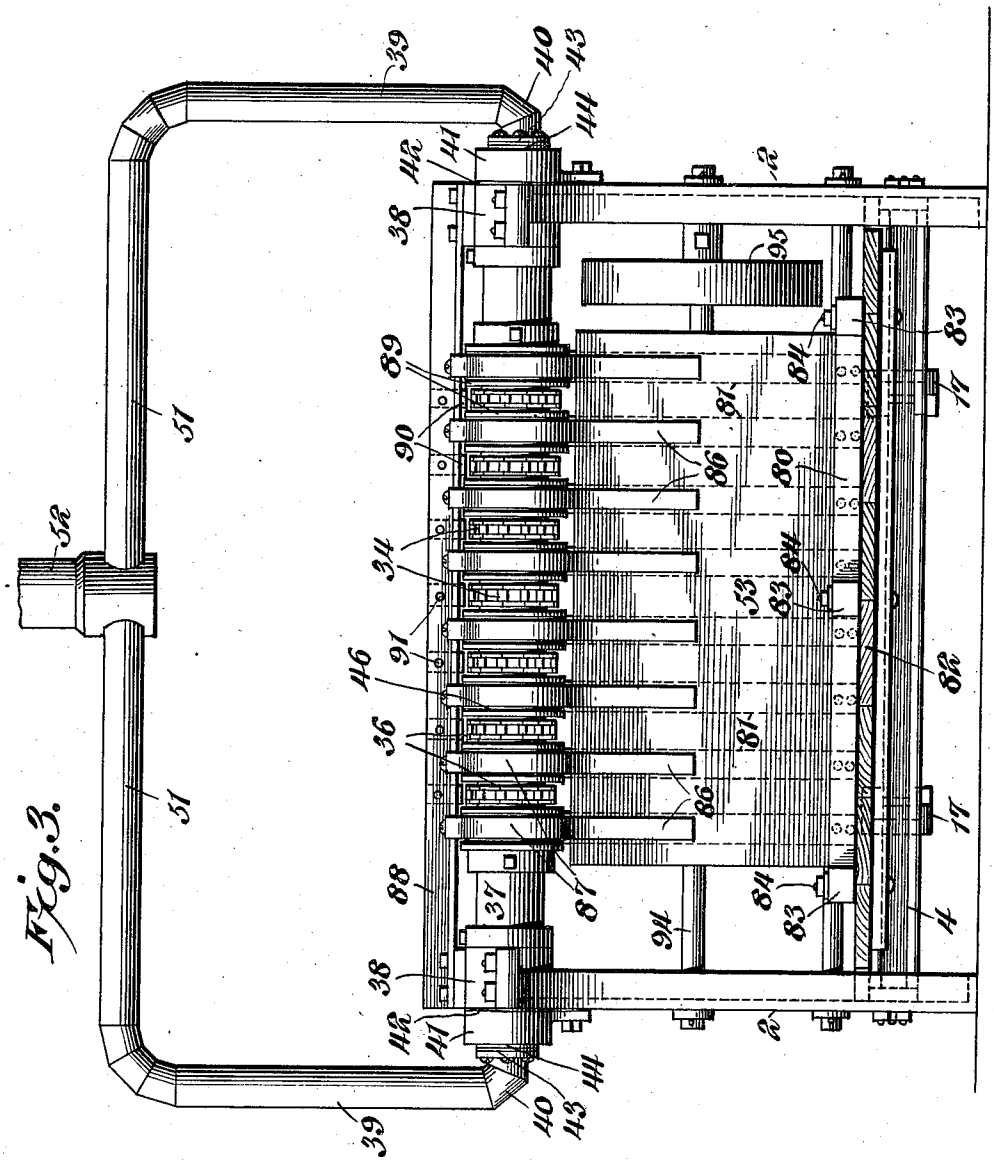

Fig. 3.

Witnesses

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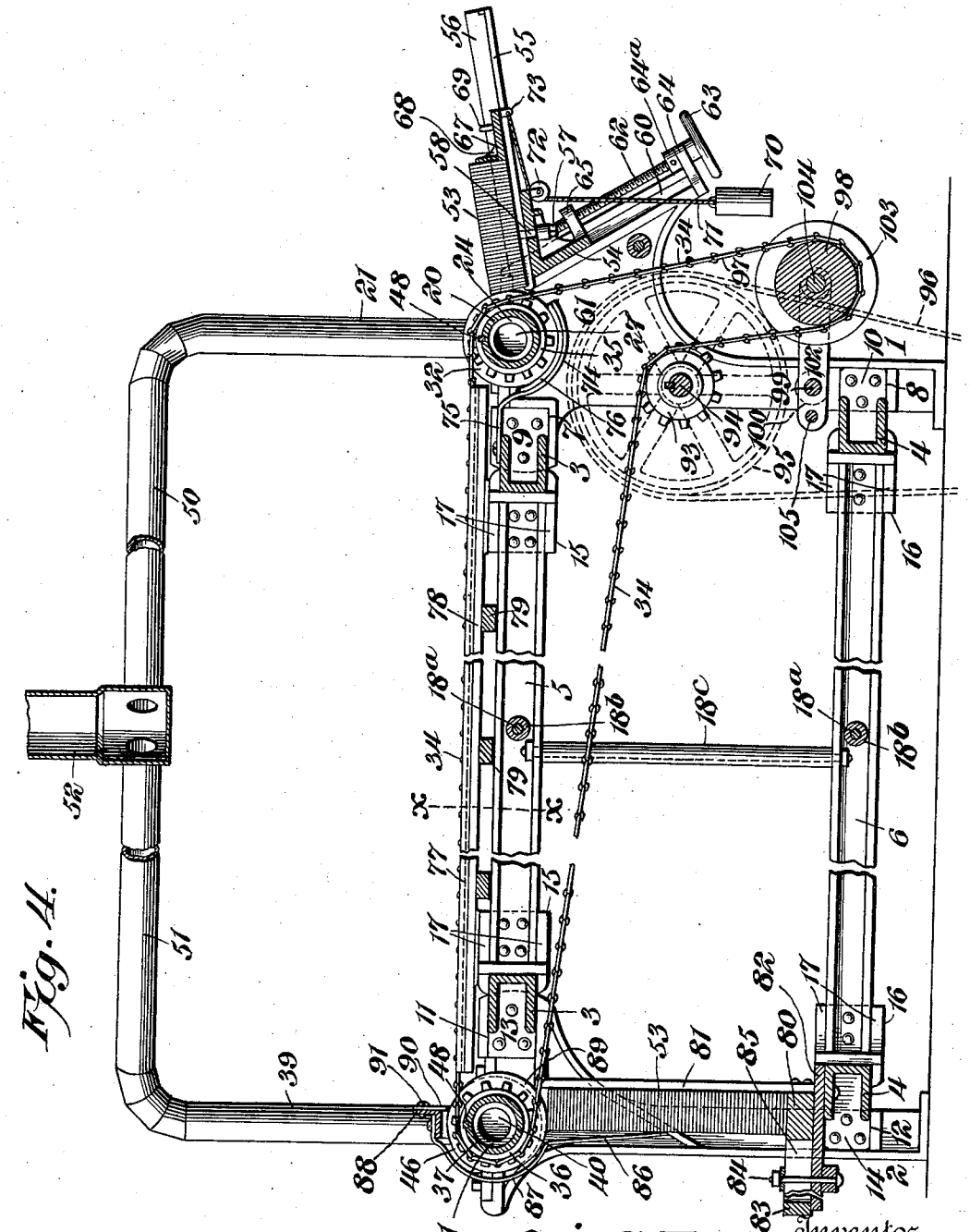

Fig. 4.

Witnesses

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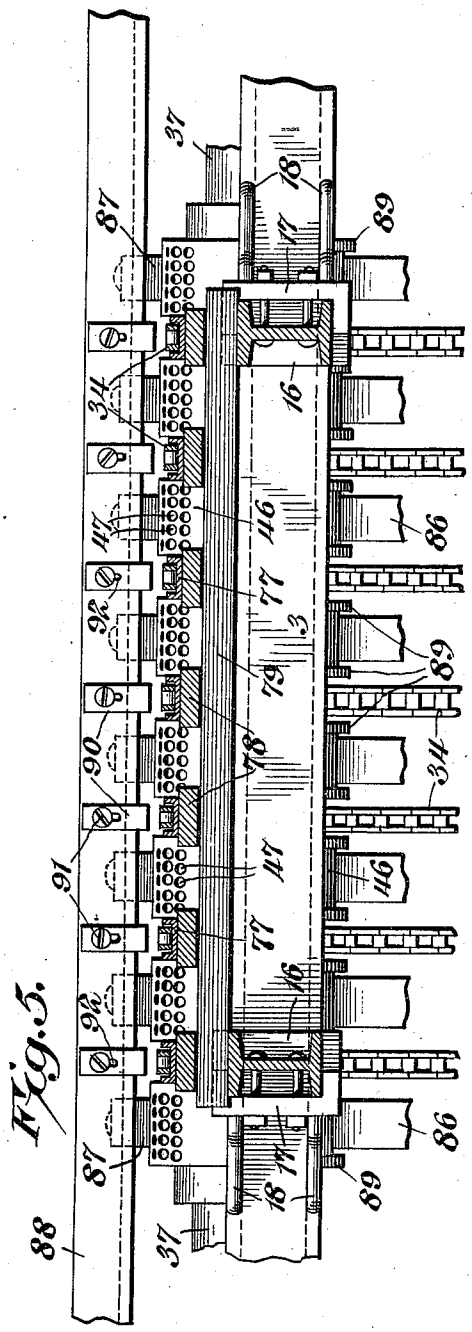

Fig. 5.

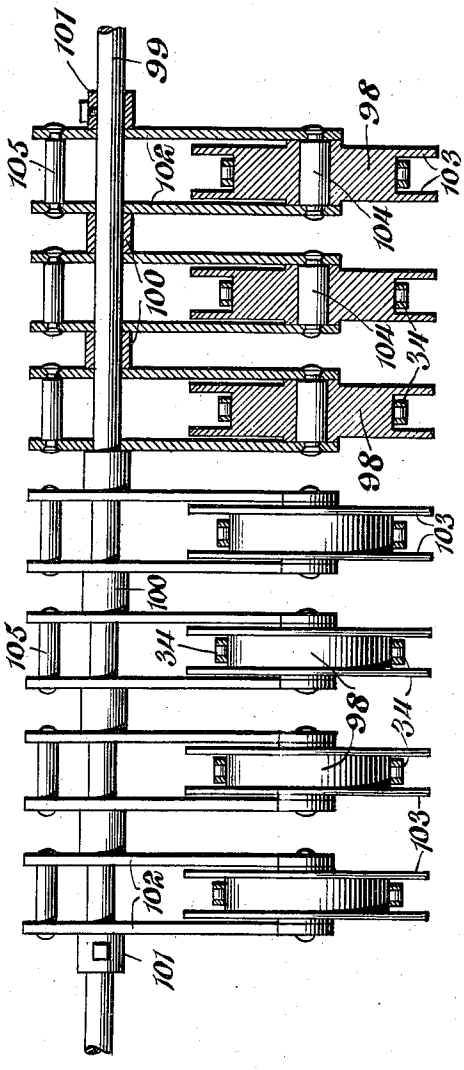

Fig. 6.

Witnesses

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6 SHEETS—SHEET 6.

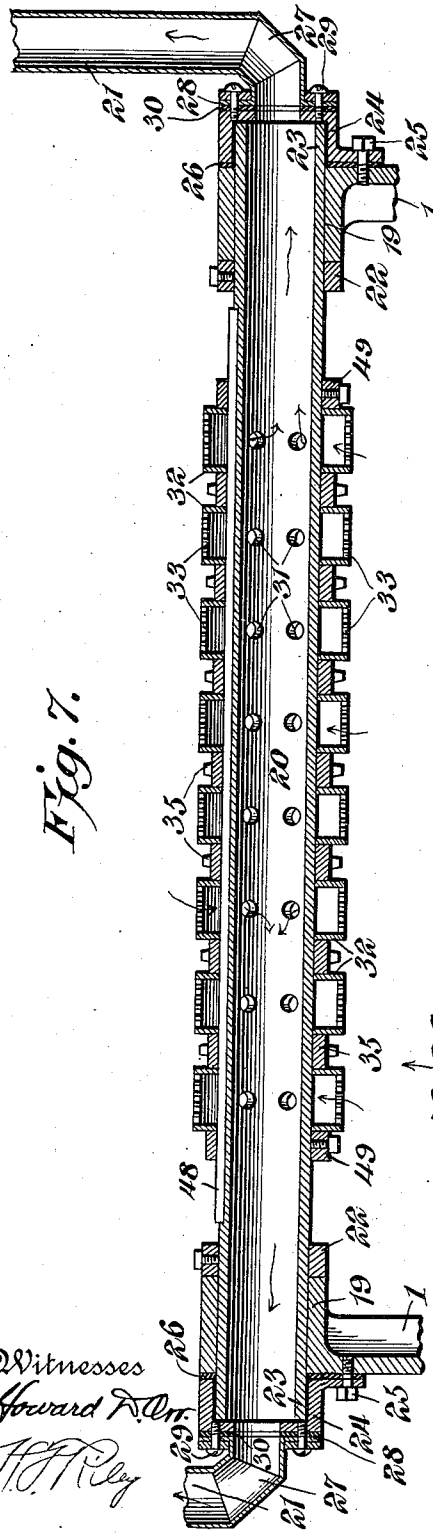

Fig. 7.

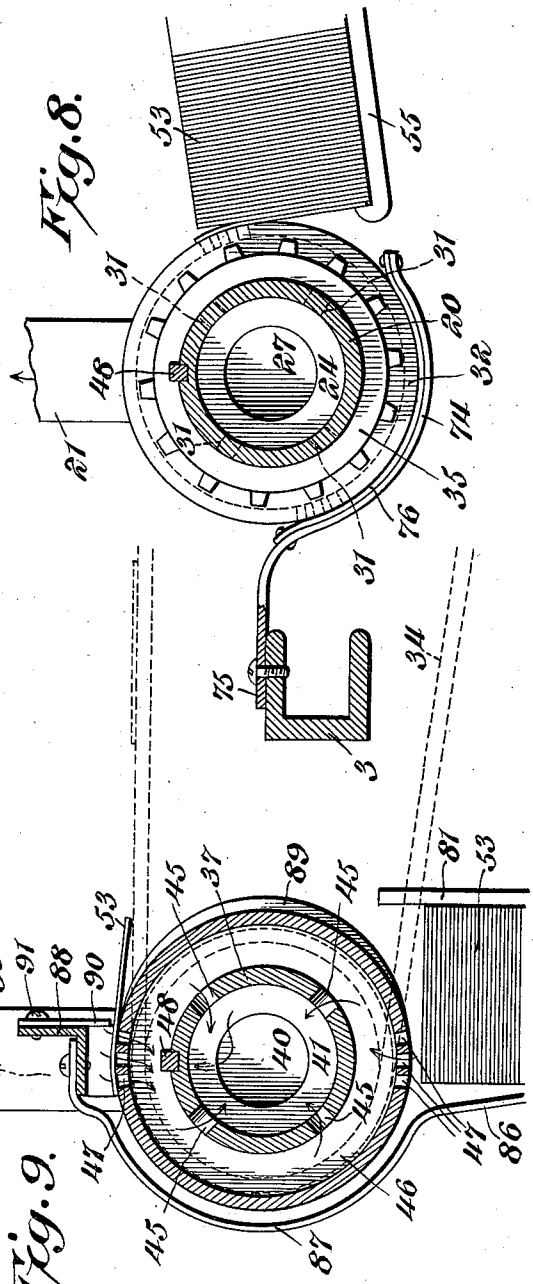

Fig. 8.

Fig. 9.

Witnesses

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UNITED STATES PATENT OFFICE.

ORIN C. FENLASON, OF HOQUIAM, WASHINGTON.

MACHINE FOR USE IN SORTING VENEER.

1,014,819. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed February 21, 1908. Serial No. 417,169.

To all whom it may concern:

Be it known that I, ORIN C. FENLASON, a citizen of the United States, residing at Hoquiam, in the county of Chehalis and State of Washington, have invented a new and useful Machine for Use in Sorting Veneer, of which the following is a specification.

The invention relates to a machine for sorting sheets of veneer.

Heretofore it has been the practice to employ boys and girls to sort veneer, and it has been necessary to handle and examine the sheets one at a time in order to see the defects and cull out the bad sheets. This process has proven very expensive especially in sorting long thin material, which must be turned end for end in order to examine it thoroughly.

The object of the present invention is to lessen the expense of manufacturing veneer packages by reducing the cost of sorting the veneer, and to provide a simple and comparatively inexpensive machine, adapted to enable veneer to be rapidly sorted without handling the same to ascertain the defects thereof.

A further object of the invention is to provide a machine of this character, adapted to carry the sheets of veneer in spaced relation past a plurality of operators, within easy reach of the same, so that the defective sheets may be easily seen and readily removed.

Another object of the invention is to provide a machine adapted to receive the veneer in a stack or pile, and capable of stacking the perfect sheets evenly and uniformly at the discharge end of the conveyer.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a plan view of a veneer sorting machine, constructed in accordance with this invention. Fig. 2 is a front elevation of the same. Fig. 3 is a rear elevation. Fig. 4 is a central vertical longitudinal sectional view. Fig. 5 is a transverse sectional view of the upper portion of the machine, taken substantially on the line *x*—*x* of Fig. 4. Fig. 6 is a detail view partly in section, illustrating the construction of the chain tightener. Fig. 7 is an enlarged sectional view, taken transversely of the machine and illustrating the construction of the front rotary suction devices. Fig. 8 is an enlarged detail sectional view, taken longitudinally of the machine through one of the front rotary suction devices and illustrating the arrangement of the veneer and the resilient closure. Fig. 9 is an enlarged detail sectional view of the rear rotary suction device, illustrating the construction for stacking the veneer. Fig. 10 is a detail view of a portion of the frame of the machine.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The frame of the machine comprises front and rear legs or standards 1 and 2, upper and lower front and rear transverse connecting bars or members 3 and 4, and upper and lower longitudinal bars or members 5 and 6. The front legs or standards, which preferably consist of castings, are provided at their inner faces with upper and lower horizontal brackets 7 and 8, in which are bolted or otherwise secured attaching flanges 9 and 10 of the front upper and lower transverse bars or members. The front upper and lower transverse bars or members are preferably in the form of channel castings, and the attaching flanges 9 and 10 project from the ends of the transverse bars or members and are arranged at right angles to the same. The rear legs or standards are provided with corresponding upper and lower brackets 11 and 12, and the upper and lower rear transverse bars or members are constructed similar to the front transverse bars or members, and are provided with terminal attaching flanges 13 and 14, which are bolted, or otherwise secured in the recesses of the rear legs or standards.

In order to enable the persons employed for sorting the veneer to stand close to the endless carrier or conveyer, hereinafter described, the longitudinal bars or members, which are preferably in the form of I-beams, are secured to the transverse bars or members at points between the ends thereof, thereby leaving an open space at each side

of the machine, as clearly illustrated in Fig. 1 of the drawings. The transverse bars or members are provided with horizontal supporting arms 15 and 16, having grooves or channels to receive the ends of the longitudinal bars or members 5 and 6.

The grooves or channels of the arms 15 and 16 are formed by upper and lower spaced flanges, and the arms, which are cast integral with the transverse bars, are reinforced by upper and lower bosses 17 and horizontal webs 18. The sides of the frame are also connected by transverse braces, consisting of rods 18^a and tubular bars 18^b, interposed between the sides of the frame. The rods 18^a, which extend through the tubes 18^b, pierce the sides of the frame and are provided at their ends with nuts for engaging the same. The upper and lower longitudinal I-beams are connected by braces 18^c, constructed similar to the said transverse braces. By this construction a frame of great strength and durability is provided. The frame, however, may be constructed in any other preferred manner, as will be readily understood. The front legs or standards are provided at their upper ends with suitable bearings 19 for the reception of a front transversely disposed tubular vacuum shaft 20, which is connected at its ends to front suction or vacuum tubes 21. The hollow shaft 20 is held against longitudinal movement by adjustable collars 22, secured to the shaft by set screws, or other suitable fastening devices and arranged at the inner ends of the bearings 19, as clearly illustrated in Fig. 7 of the drawings. The ends of the hollow shaft project beyond the bearings, and the projecting terminal portions 23 fit within caps 24, which are secured to the upper ends of the front legs or standards at the outer faces thereof by screws 25, or other suitable fastening devices, packings 26 of rubber, or other suitable material being interposed between the caps and the legs to provide air tight connections. The front suction or vacuum tubes 21 are preferably vertical, as shown, and are provided at their lower ends with elbows 27, having terminal flanges 28, which are secured by screws 29, or other suitable fastening devices to the outer faces of the caps 24, packings 30 of rubber, or other suitable material being interposed between the flanges 28 of the vacuum tubes and the caps. The caps are provided with central openings, which communicate with the vacuum tubes. This construction provides an air tight connection between the stationary suction or vacuum tubes and the front rotary hollow shaft 20.

The hollow rotary shaft 20 is provided at intervals with a series of apertures 31, each series in practice preferably consisting of four one half inch apertures. The apertures 31 communicate with a series of spaced hollow cylindrical drums 32, mounted on the shaft 20 and provided with two sets or series of perforations 33, located at diametrically opposite points and forming suction devices for feeding sheets of veneer to a carrier or conveyer, consisting of a plurality of spaced endless sprocket chains 34 and front and rear sprocket wheels 35 and 36. The front sprocket wheels, which are mounted on the shaft 20, are of a less diameter than that of the hollow drums, and the peripheries of the hollow drums intersect the plane of the carrying flights or portions of the sprocket chains, whereby the sheets of veneer are delivered to the carrier or conveyer and are stripped from the rotary feeding or suction devices, as hereinafter more fully explained. The rotary suction devices project outwardly beyond the working plane of the conveyer and off-set the latter from the stack of sheets of veneer hereinafter described.

The rear sprocket wheels 36 are mounted on a rear transversely disposed tubular shaft 37, journaled in suitable bearings 38 of the rear legs or standards and connected at its ends with rear vacuum or suction devices 39, having elbows 40 at their lower ends. The rear transverse tubular shaft is provided at its ends with joints similar to those heretofore described, the terminals of the shaft 37 being arranged in caps 41 and packings 42 of rubber, or other suitable material being interposed between the caps 41 and the rear legs or standards. The rear suction or vacuum tubes are provided at their lower ends with annular flanges 43, which are secured to the caps 41, rubber packings 44 being interposed between the flanges 43 and the cap 41. The rear shaft 37 is provided at intervals with a series of apertures 45, which communicate with hollow drums 46, provided at diametrically opposite points with sets or series of perforations 47 and forming rotary suction devices for taking the sheets of veneer from the carrier or conveyer and stacking the sheets, as hereinafter more fully explained. The drums and the sprocket wheels of both the front and rear shafts are secured to the same by means of keys 48, and are held against movement longitudinally of the shafts by adjustable collars 49, located at the sides of the drums.

The front and rear suction or vacuum tubes are connected by diagonally arranged branches 50 and 51 with a central vertical air trunk 52, which is connected with a suitable suction or exhaust fan (not shown). The area of the air trunk should equal or exceed the combined areas of the front and rear vacuum or suction tubes, and in practice the front and rear vacuum tubes will preferably be four inches in diameter and the air trunk 8 inches. However, the rela-

tive diameters of the air trunk and the vacuum tubes may be varied, as will be readily understood. When the air within the air trunk is exhausted, vacuums or partial vacuums are created in the hollow air drums, and the latter form rotary suction devices and are adapted to grasp and positively carry the sheets of veneer, as hereinafter more fully explained.

The sheets 53 of veneer are placed upon a front table in a slightly inclined position, the sheets resting upon their lower edges and being adapted to present their rear faces to the rotary suction devices, as clearly illustrated in Figs. 4 and 8 of the drawings. The rotary suction devices form a stop for the stack of sheets of veneer and engage the stack throughout their entire rotary movement. The upper edge or portion of the end sheet, contiguous to the rotary suction devices, is free and when, through the rotation of the hollow shaft 20, the perforations 33 are carried to the upper portion of the end sheet, the latter will be firmly grasped by the hollow drums and will be lifted from the stack and conveyed to the endless chains, which will strip the sheets of veneer from the drums 32 and carry the same along the machine to the discharging rear end thereof. The sheets of veneer may, as illustrated in the accompanying drawings, extend entirely across the table, or a plurality of stacks of shorter sheets may be placed on the table, as will be readily understood. When the sheets extend entirely across the machine, the persons sorting the sheets will watch their respective ends and remove the defective sheets.

The table, which is arranged at an inclination, consists of a transverse portion or head 54 and intermediate and side bars or members 55 and 56, adjustably secured at their front ends to the transverse portion or head 54 by means of screws 57, which extend through slots 58 of the transverse portion of the table. The transverse portion of the table is substantially V-shaped in cross section being composed of two wings or flanges, as clearly shown in Fig. 4 of the drawings, and one of its wings or flanges is arranged to support the bars or members 55 and 56. The screws 57 engage threaded perforations of the bars or members 55 and 56, which are adapted to be moved transversely of the machine. The other wing or flange of the transverse portion or head is provided with extended terminals 59, slidably arranged in inclined guides 60. The inclined guides 60 consist of grooves, formed in the inner faces of enlargements or extensions 61 of the front legs or standards of the frame, and the said grooves extend upwardly and inwardly toward the front rotary suction devices to enable the table to be raised and lowered and adjusted toward and from the said suction devices to position the veneer properly with relation to the same. The table is raised and lowered by means of a pair of inclined adjusting screws 62, equipped at their lower ends with hand wheels 63, or other suitable operating means and journaled in lugs 64, preferably formed integral with the extensions 61 of the front legs or standards and located at the lower ends of the inclined groove 60. The screws are supported in the bearings of the lugs 64 by means of collars 64^a, secured to the adjusting screws by means of set screws, or other suitable fastening means, the lug 64 being arranged between the hand wheel 63 and the collar 64^a. The upper portion of the adjusting screws engage threaded apertures of the lugs or ears 65, extending outwardly from the flange or wing of the transverse portion or head, which slides in the grooves. The lugs 65 are arranged at right angles to the grooves, and the adjusting screws are adapted to be rotated to raise and lower the table. The upper supporting flange or wing of the transverse portion or head of the table is provided at its ends with openings 66, arranged in alinement with the adjusting screws and adapted to permit the upper ends thereof to extend through them, whereby the table may be raised or lowered to the full capacity of the adjusting screws.

The veneer is maintained in contact with the front rotary suction devices, and is held in proper position by means of a transversely disposed follower 67, arranged on the adjustable bars 55 and 56 of the table and slidable between the upwardly extending flanges or wings of the angle bars 56. The follower consists of a transverse bar or body portion and an upstanding flange arranged at the engaging edge of the body portion and adapted to fit against the outermost sheet of veneer, as clearly illustrated in Fig. 4 of the drawings. The upstanding flange or portion is reinforced by webs 68, and the transverse bar or body portion is provided at the center with a handle or grip 69 to enable the follower to be readily grasped and drawn outwardly to permit the veneer to be readily placed upon the table between the follower and the front suction devices. The follower is automatically advanced by weights 70 as the veneer is carried from the table by the rotary suction devices. The weights 70, which are located at opposite sides of the front of the machine, are secured to the lower ends of flexible connections 71, consisting of ropes, cables, or the like and depending from guide pulleys 72, and extending outwardly therefrom to the follower, which is provided with lugs 73 for the attachment of the upper or outer ends of the flexible connections. The guide pulleys 72 are mounted on and arranged at

the lower face of the supporting flange or wing of the transverse portion or head of the table.

The sheets of veneer from the table are carried upwardly by the front rotary suction devices, the free upper edge being drawn against the rotary suction devices, as clearly illustrated in Fig. 8 of the drawings, and in order to enable the full force of the suction to be applied to the veneer for taking the same from the table, the machine is equipped with a plurality of resilient or yieldable closures for covering one set of the perforations 33, while the other set is carrying the veneer from the table. The curved closures are in the form of shoes and consist of springs 74, secured at their inner ends 75 to the top of the spaced front channel bar or beam 3 and extending outwardly and downwardly therefrom to the outer portions of the rotary drums. The springs 74 are curved to conform to the configuration of the drums, and they are provided at their upper faces with lining strips 76 of leather, rubber, or other suitable material to enable the springs to form air tight closures for the lower set of perforations 33, while the upper set of perforations is traveling from the veneer to the endless chains. This causes the veneer to be held to the drums by the full strength of the suction created by the exhaust fan.

The upper carrying stretches or flights of the endless sprocket chains, extending between the front and rear suction devices, travel in horizontal guides 77, consisting of channel bars mounted upon wooden bars 78, which are supported by transverse bars 79. The transverse bars 79, which are arranged at intervals, are suitably secured at their ends to the upper longitudinal side bars. These longitudinal guides prevent the sprocket chains from sagging, and the sprocket chains, which project slightly above the side flanges of the channel bars 78, support the veneer clear of the guides.

The veneer is spaced apart at regular intervals, and the defective sheets may be easily and conveniently removed. The perfect sheets, as they arrive at the discharging end of the conveyer, are grasped by the rear rotary suction drums or devices 46 and are carried downwardly around the outer side thereof and are delivered to a rear table 80, extending across the machine and provided at its inner transverse edge with upwardly extending arms or bars 81. The table, which is mounted upon a horizontal platform 82, is also provided with outwardly or rearwardly extending intermediate and side arms or portions 83, adjustably secured to the platform by means of bolts 84, piercing the platform 82 and extending through slots 85 of the arms or portions 83. The table is adapted to be moved inwardly and outwardly in a direction longitudinally of the machine to arrange the upwardly extending arms or members in proper position with relation to resilient arms or members 86 to suit the width of the sheets of veneer. The upwardly extending arms or bars 81 form a transverse inner wall against which the sheets of veneer are stacked. The said arms or bars 81 extend upwardly to a point above the plane of the bottom of the rear rotary suction devices, so as to extend into the path of the sheet of veneer carried by the said suction devices. The endless chains are arranged in the spaces between the arms or bars 81, which prevent the sheets of veneer from being carried farther by the rear suction devices.

The sheets of veneer are clamped between the arms or bars 81 of the table and the resilient arms or members 86, which are provided with curved upper guiding portions 87, arranged substantially concentric with the hollow shaft and secured to a rear transversely disposed supporting bar 88. The curved portions of the resilient arms or bars form guides for the veneer, as the sheets are carried around the discharging end of the conveyer, and are delivered to the stack or pile. The bar 88, which is constructed of angle iron, or other suitable metal, is composed of a rearwardly extending horizontal flange and an upwardly extending vertical flange, the upper ends of the curved portions of the resilient arms being secured to the upper face of the horizontal flange of the bar 88. The resilient arms or members 86 extend downwardly and terminate at a point about midway between the rear rotary suction devices and the horizontal portion of the table. This leaves the lower portion of the rear end of the machine open for the removal of the stack of veneer, and in practice, the sheets of veneer will be evenly stacked in the space between the resilient arms or members 86 and the rear arms or bars 81, the resilient arms or members having sufficient strength to support the veneer held by them.

The rear rotary suction devices are equipped with peripherally arranged cams 89, located at one side of each of the hollow drums and extending from one set of perforations to the other. The two sets of perforations 47 of the rear drums are arranged diametrically opposite each other, and the peripherally arranged cams are curved longitudinally and taper from their centers to their ends, and they present curved faces to the veneer and are adapted to press downwardly the veneer supported by the resilient arms or members. The cams operate to smooth the veneer, and they enable the sheets to be evenly and uniformly piled. The cams also serve to press the stack down and thereby space the same from the suction de-

vices to provide a space for the next succeeding sheet.

The rear transverse supporting bar 88 is also equipped with a transverse series of fingers 90, depending from the supporting bar and arranged in the path of and forming stops for checking the veneer to hold the same until it is properly grasped at its rear edge by the rotary suction devices. The upper portions of the fingers are secured to the vertical flange of the bar 88 by means of screws 91, which pass through slots 92 of the fingers, and the latter are adapted to be adjusted vertically. In practice the fingers, which are located above the chains, will extend downwardly to within about an eighth of an inch to the plane of the periphery of the drums and one quarter of an inch below the highest portion of the cam, when the latter is at the top of the drums. Should a sheet of veneer, stopped by the fingers, be raised by the cams, it will be drawn downward by the rotary suction devices, and will be carried rearwardly and downwardly by the same and delivered upon the stack or pile. The sheets of veneer are disposed transversely with relation to the endless conveyer, and there is sufficient space between the fingers and the terminal portions of the cams for the veneer to pass when properly engaged by the rotary suction devices.

The lower flights or stretches of the sprocket chains extend forwardly from the rear sprocket wheels to lower front driving sprocket wheels 93, mounted on a counter shaft 94 equipped at one end with a pulley 95, which receives a driving belt 96, extending downwardly through the floor to a suitable driving pulley (not shown). In practice, the sorting machine will be arranged on one of the upper floors of a factory, but, of course, it may be operated at any other desired point, and any preferred arrangement of belting or gearing may be employed. The lower sprocket wheels 93 constitute a bottom drive and maintain the lower flights or stretches of the sprocket chains taut, and prevent any sagging of the sprocket chains. This assures a uniform discharge and an even stacking of the perfect sheets of veneer upon the rear table.

The transverse shaft 94 is journaled in suitable bearings of the front legs or standards of the frame, and the sprocket chains are provided at the front of the machine with depending loops 97, which are engaged by a series of chain tighteners 98, mounted on a transverse rod or shaft 99 and maintained in spaced relation by sleeves or collars 100, interposed between the tension devices. The end tension devices are also arranged between sleeves or collars 101, provided with set screws, or other suitable means for engaging the transverse rod or shaft 99. Each tension device consists of a wheel, mounted between a pair of pivoted arms 102 and provided with a peripheral groove, formed by spaced flanges 103 and receiving the depending loop 97. The pivoted arms 102 are connected at their outer ends by means of a shaft or axle 104, upon which the loop-engaging wheel is mounted, and the inner ends of the arms are connected by a transverse pin 105. The pivoted tension devices are adapted to take up the slack and maintain the chains at the desired tension.

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

1. A machine of the class described comprising means for holding a stack of sheets of material in fixed relation, a conveyer, a rotary device for feeding the sheets of material onto the conveyer, said rotary device engaging the stack at its periphery throughout its entire rotary movement and projecting outwardly beyond the working plane of the conveyer to off-set the latter from the stack.

2. A machine of the class described comprising means for holding a stack of sheets of material, a conveyer including a plurality of sprocket chains, and a shaft carrying sprocket wheels for the chains, and a plurality of rotary annular suction devices also mounted on the shaft for feeding the material onto the conveyer and forming a stop for the stack, the latter being supported in fixed relation with the suction devices, said suction devices being of greater diameter than the sprocket wheels so as to space the conveyer from the stack and engaging the latter throughout their entire rotary movement.

3. A machine of the class described comprising a conveyer including a plurality of endless chains, shafts, and sprocket wheels mounted on the shafts, and front and rear rotary devices also mounted on the shafts for feeding the veneer onto the conveyer and for removing it therefrom.

4. A machine of the class described comprising a conveyer including a plurality of endless chains, hollow front and rear vacuum shafts, and sprocket wheels mounted on the shafts, and front and rear rotary suction devices mounted on and communicating with the shafts for feeding the sheets onto the conveyer and for removing them therefrom.

5. In a machine of the class described, the combination of front and rear shafts, spaced endless carriers connecting the same, front and rear rotary suction devices mounted on the shafts and having their peripheral surfaces projecting outwardly beyond the working plane of the carrier, the front suction device being arranged to feed sheets of ma-

terial onto the carriers and the rear suction device being adapted to remove the sheets from the carriers.

6. In a machine of the class described, the combination of front and rear shafts, spaced endless carriers connecting the shafts, and front and rear rotary suction devices carried by the shafts for feeding the sheets onto the conveyer and for removing them therefrom.

7. A machine of the class described comprising a conveyer including a plurality of endless chains, hollow vacuum shafts, and sprocket wheels mounted on the shafts, and a plurality of hollow drums communicating with the shafts and provided with suction apertures, said drums alternating with the sprocket wheels.

8. A machine of the class described comprising a conveyer including a plurality of endless chains, hollow vacuum shafts, and sprocket wheels mounted on the shafts, and a plurality of hollow drums mounted on the shafts and provided with suction apertures, said drums being of greater diameter than the sprocket wheels to space the sheets from the same.

9. A machine of the class described comprising an endless conveyer having spaced hollow shafts, rotary suction devices mounted on the shafts for feeding the veneer onto the conveyer and for removing it therefrom, and an exhaust or vacuum pipe having branch tubes connected with the hollow shafts.

10. A machine of the class described comprising an endless conveyer having spaced hollow shafts, rotary suction devices mounted on the shaft for feeding the veneer onto the conveyer and for removing it therefrom, and an exhaust or vacuum pipe having branch tubes extending to and connected with both ends of each shaft.

11. A machine of the class described comprising an endless conveyer including a hollow suction or vacuum shaft, a rotary suction device consisting of a hollow drum mounted on and communicating with the shaft and provided with a plurality of sets of apertures, and a closure for covering the remaining apertures when one set is operating on the veneer, said closure consisting of a curved shoe, and means for holding the same yieldably in engagement with the periphery of the drum.

12. A machine of the class described comprising an endless conveyer including a hollow suction or vacuum shaft, a rotary suction device consisting of a hollow drum mounted on and communicating with the shaft and provided with a plurality of sets of apertures, and a closure for covering the remaining apertures when one set is operating on the veneer, said closure consisting of a curved spring arranged concentric with the periphery of the hollow drum and provided with a lining of flexible material to form an air tight closure.

13. A machine of the class described comprising a frame provided at opposite sides with inclined ways, an endless conveyer having a hollow suction shaft journaled in the frame, a rotary suction device mounted on the shaft, a table slidable in the said ways and arranged to hold the veneer contiguous to the suction device, a follower mounted on the table, and weights connected with the follower for actuating the same to feed the veneer to the suction device.

14. A machine of the class described comprising an endless conveyer, a rear rotary suction device for removing the veneer from the conveyer, and a table arranged to receive the veneer.

15. A machine of the class described comprising an endless conveyer, a rear rotary suction device for removing the veneer from the conveyer, and spaced members arranged to receive the veneer to form a stack or pile.

16. A machine of the class described comprising a conveyer, a rotary device for removing the veneer from the conveyer, and spaced members arranged to stack the veneer and adapted to support the same.

17. A machine of the class described comprising a conveyer, a rotary device for removing the veneer from the conveyer, and spaced members arranged to stack the veneer, one of the members being located in the path of the veneer and forming a stop.

18. A machine of the class described comprising a conveyer, a rotary device for removing the veneer from the conveyer, and spaced members arranged to stack the veneer, one of the members being located in the path of the veneer and forming a stop and the other member being yieldable.

19. A machine of the class described comprising a conveyer, a rotary device for removing the veneer from the conveyer, and means for stacking the veneer including a table having means extending into the path of the veneer to form a stop for the same, and a resilient arm or member coöperating with the stop and arranged in spaced relation with the same.

20. A machine of the class described comprising a conveyer, a rotary device for removing the veneer from the conveyer, means for stacking the veneer including a table having means extending into the path of the veneer to form a stop for the same, and a resilient arm or member coöperating with the stop and arranged in spaced relation with the same, said arm or member being provided with a curved portion arranged concentric with the said rotary device and forming a guide for the veneer.

21. A machine of the class described comprising a conveyer, a rotary device for taking the veneer from the conveyer, means for

stacking the veneer, and means operated by the conveyer for smoothing the stacked veneer.

22. A machine of the class described comprising a conveyer, a rotary device for taking the veneer from the conveyer, means for stacking the veneer, and a rotary smoothing device for smoothing the stacked veneer.

23. A machine of the class described comprising a conveyer, a rotary device for taking the veneer from the conveyer, means for stacking the veneer, and a rotary cam arranged to smooth the stacked veneer and adapted also to press the same downward.

24. A machine of the class described including a shaft, spaced drums mounted on the shaft and having a plurality of openings, and cams extending around the drums between the openings.

25. A machine of the class described comprising an endless conveyer, a rotary device for removing the veneer from the conveyer, means for stacking the veneer including curved members arranged concentric with the said rotary device, and a stop arranged in the path of the veneer for holding the same until engaged by the said rotary device.

26. A machine of the class described comprising an endless conveyer, a rotary suction device for removing the veneer from the conveyer, a table provided with arms or bars extending into the path of the veneer, spaced members coöperating with the arms or bars for stacking the veneer and having curved guiding portions spaced from the suction device, and a stop also arranged in the path of the veneer for holding the same until engaged by the suction device.

27. A machine of the class described comprising an endless conveyer including a series of spaced sprocket chains, rotary devices operating in the spaces between the chains for removing the veneer from the conveyer, and a series of stops arranged in the spaces between the rotary devices for checking the veneer until properly engaged by the said devices.

28. A machine of the class described comprising an endless conveyer, a rotary suction device for removing the sheets from the conveyer, and a stop extending into the path of the sheets for checking the same until properly engaged by the said suction device.

29. A machine of the class described comprising a conveyer including a plurality of spaced endless chains, means for stacking the veneer including rotary devices for taking the veneer from the conveyer, and a plurality of fingers arranged in the path of the veneer and adjustable toward and from the conveyer, said fingers being adapted to hold the veneer until properly engaged by the rotary devices.

30. A machine of the class described comprising a conveyer including a plurality of spaced endless chains, means for stacking the veneer including rotary devices for taking the veneer from the conveyer, a transverse supporting bar located above the rotary devices, and a series of fingers adjustably secured to and depending from the supporting bar and arranged between the said rotary devices.

31. A machine of the class described comprising an endless conveyer, a rotary suction device for removing the veneer from the conveyer, a table provided with arms or bars extending into the path of the veneer, spaced members coöperating with the arms or bars for stacking the veneer and having curved guiding portions spaced from the suction devices, a stop also arranged in the path of the veneer for holding the same until engaged by the suction devices, and a cam carried by the suction devices and arranged to smooth the stacked veneer.

32. A machine of the class described comprising an endless conveyer including a hollow shaft, a rotary suction device mounted on the shaft and communicating with the interior thereof and provided with opposite suction openings, and a curved cam located at one side of the suction device between the said openings.

33. A machine of the class described comprising an endless conveyer including a hollow shaft, a rotary suction device consisting of a hollow drum mounted on the said shaft and communicating with the interior thereof and provided with opposite sets of suction openings, and a curved cam carried by the drum at one side thereof and extending from one set of apertures to the other, and means for stacking the veneer, said cam operating to smooth the stacked veneer and also to press the same downward to provide a space for the next succeeding sheet.

34. A machine of the class described comprising an endless conveyer having a hollow shaft, suction devices mounted on the hollow shaft for removing the veneer from the conveyer, an adjustable table provided with upwardly extending arms or bars for stacking the veneer, and resilient members composed of curved upper guiding portions spaced from the conveyer, and lower veneer-engaging portions spaced from the said arms or bars and terminating short of the table to leave an open space for the removal of the veneer at the bottom of the stack, said resilient members being adapted to support the upper portion of the stack.

35. A machine of the class described comprising a frame, a conveyer including a plurality of endless sprocket chains having horizontal upper stretches, shafts journaled in the frame, and sprocket wheels mounted on the shafts, guides supporting the upper

stretches of the sprocket chains, means located at the front of the machine for feeding the veneer onto the conveyer, means located at the rear of the machine for stacking the veneer, and driving means engaging the lower stretches of the chains.

36. A machine of the class described comprising a conveyer including a plurality of sprocket chains having upper horizontal flights, means for removing the sheets of veneer from the conveyer, means for stacking the sheets, and driving mechanism engaging the sprocket chains at the lower flights thereof, whereby the said lower flights are maintained taut to secure a uniform stacking of the sheets.

37. A machine of the class described comprising a conveyer including a plurality of endless chains having upper and lower flights or stretches, the upper flights or stretches being arranged to carry the veneer, means for stacking the sheets of veneer as they leave the conveyer, driving sprocket gears arranged beneath the conveyer and engaging the lower flights of the sprocket chains, the latter being provided in advance of the sprocket gears with loops, and tension devices engaging the loops of the sprocket chains.

38. A machine of the class described comprising front and rear shafts, rotary suction devices mounted thereon, endless chains connecting the shafts, and driving mechanism arranged below and engaging the lower flights of the chains.

39. A machine of the class described comprising front and rear shafts, sprocket wheels mounted thereon, chains arranged on the sprocket wheels for rotating the shafts, suction devices also mounted on the shafts, and driving mechanism arranged below and engaging the lower flights of the chains.

40. A machine of the class described comprising means for holding a stack of sheets of material, a conveyer for exposing the sheets, and feeding mechanism including a front rotary suction device for carrying the sheets of veneer from the stack to the conveyer, and a rear rotary suction device for removing the sheets from the conveyer.

41. A machine of the class described comprising means for holding a stack of sheets of veneer, a conveyer, means for feeding the sheets of veneer one at a time from the stack onto the conveyer in a spread-out condition for exposing the sheets, and rotary suction devices for removing the sheets from the conveyer.

42. In a machine of the class described, the combination with means for holding a stack of sheets of material, of a hollow shaft, means for producing suction within the shaft, said shaft having spaced annular rotary suction devices forming intervening grooves to permit the suction devices to bear against the stack throughout their entire rotary movement, said stack being supported in fixed relation with the rotary suction devices, and an endless conveyer having its chains arranged in the grooves between the suction devices entirely below the periphery thereof so as to space the conveyer from the stack.

43. In a machine of the class described, the combination with means for holding a stack of sheets of material, of a hollow shaft, means for producing suction within the shaft, said shaft having hollow spaced perforated annular drums forming intervening grooves, and an endless conveyer composed of sprocket wheels mounted on the hollow shaft and arranged within the said grooves, and sprocket chains arranged on the sprocket wheels and located between the hollow drums and entirely below the periphery of the same so as to space the conveyer from the stack and to permit the suction devices to bear against the stack throughout their entire rotary movement, said stack being maintained in fixed relation with the suction devices.

44. In a machine of the class described, the combination of a conveyer for exposing sheets of veneer, hollow shafts located at the receiving and discharge ends of the conveyer, and vacuum tubes for creating a suction within the shafts, the hollow shaft at the receiving end of the conveyer being adapted to grip the sheets of veneer for feeding the same onto the conveyer, and the hollow shaft at the discharge end of the conveyer being adapted to grip the sheets for removing them therefrom.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ORIN C. FENLASON.

Witnesses:
SAM. L. WINTER,
ALTON R. KELLOGG.