

O. C. FENLASON.
 PNEUMATIC FEEDING MECHANISM FOR AUTOMATIC MACHINES FOR MAKING FOLDABLE
 OR COLLAPSIBLE BERRY BOXES.
 APPLICATION FILED AUG. 25, 1911.

1,057,815.

Patented Apr. 1, 1913.

4 SHEETS—SHEET 1.

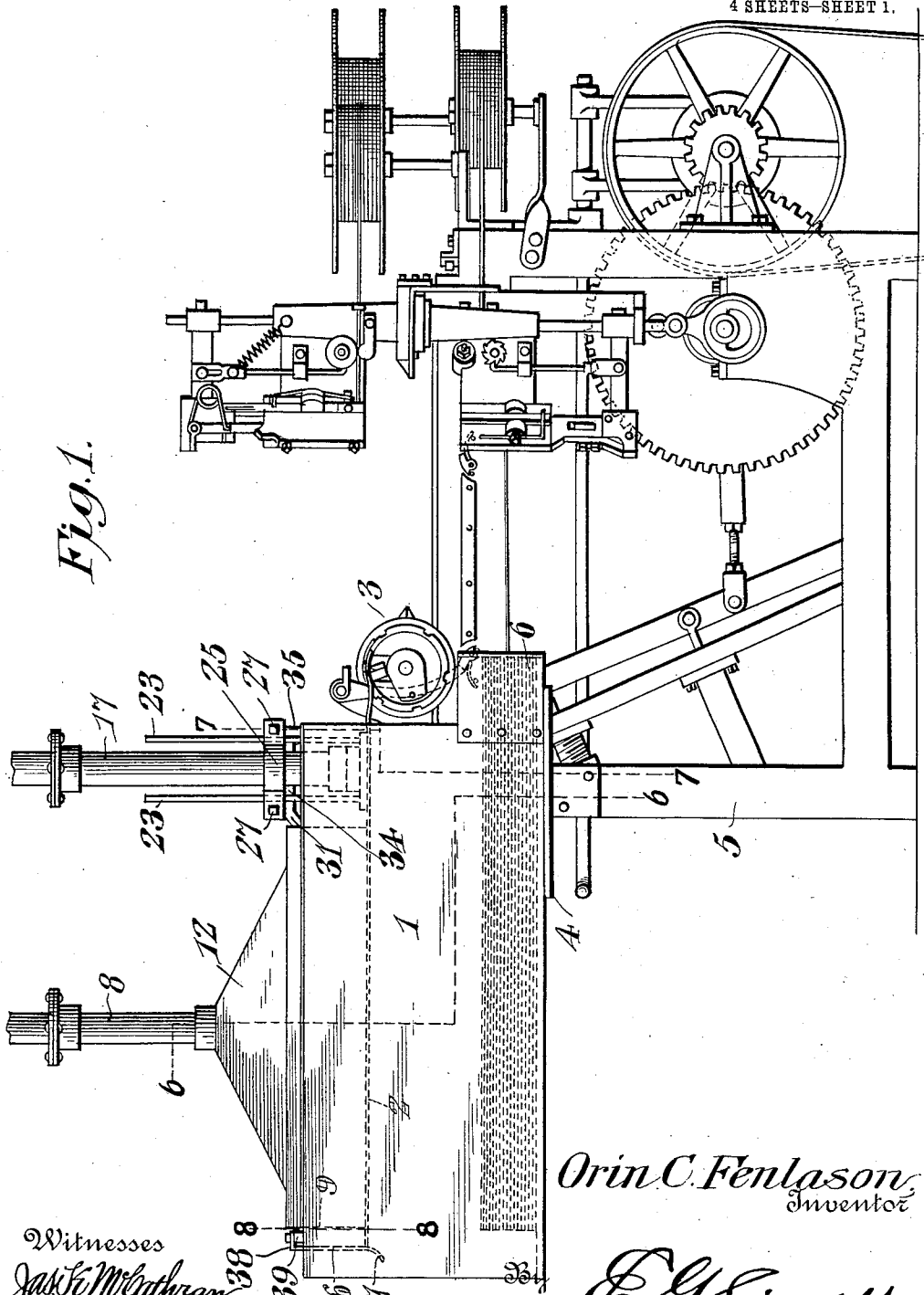


Fig. 1.

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Witnesses
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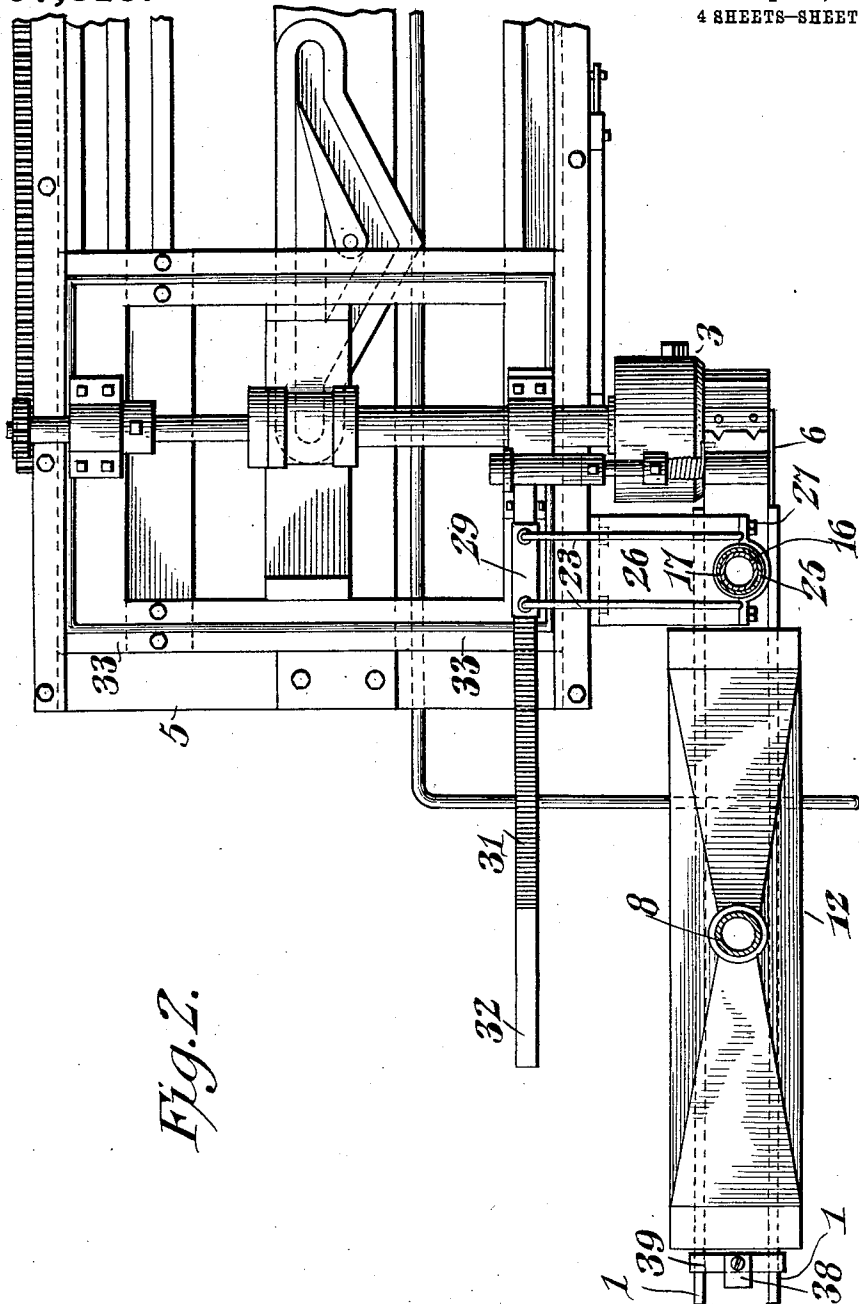


Fig. 2.

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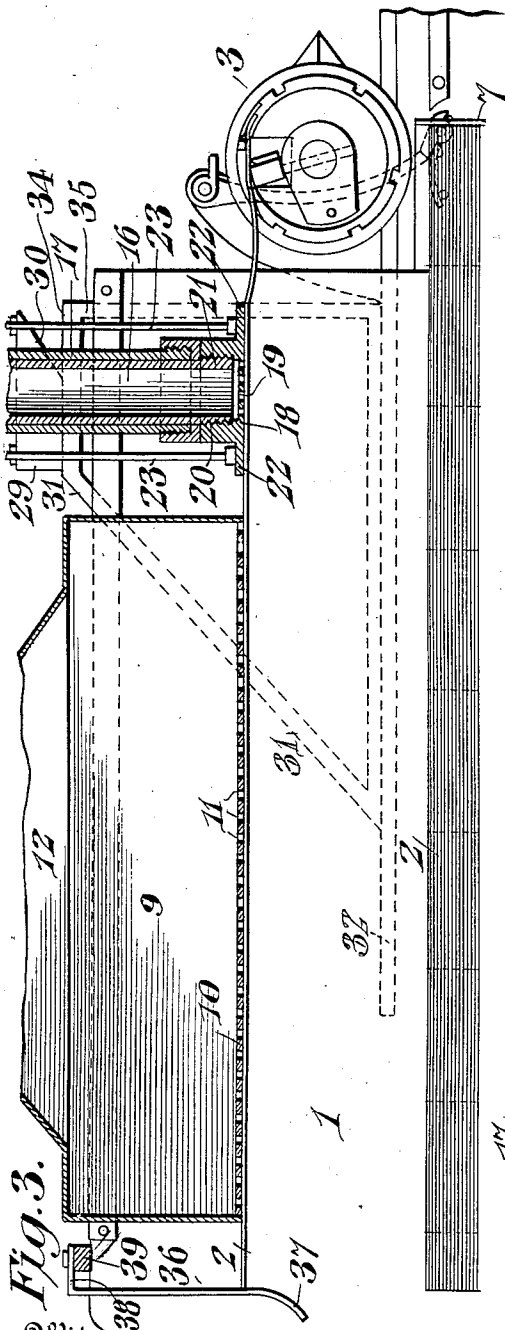


Fig. 3.

Witnesses

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H. J. Cluy

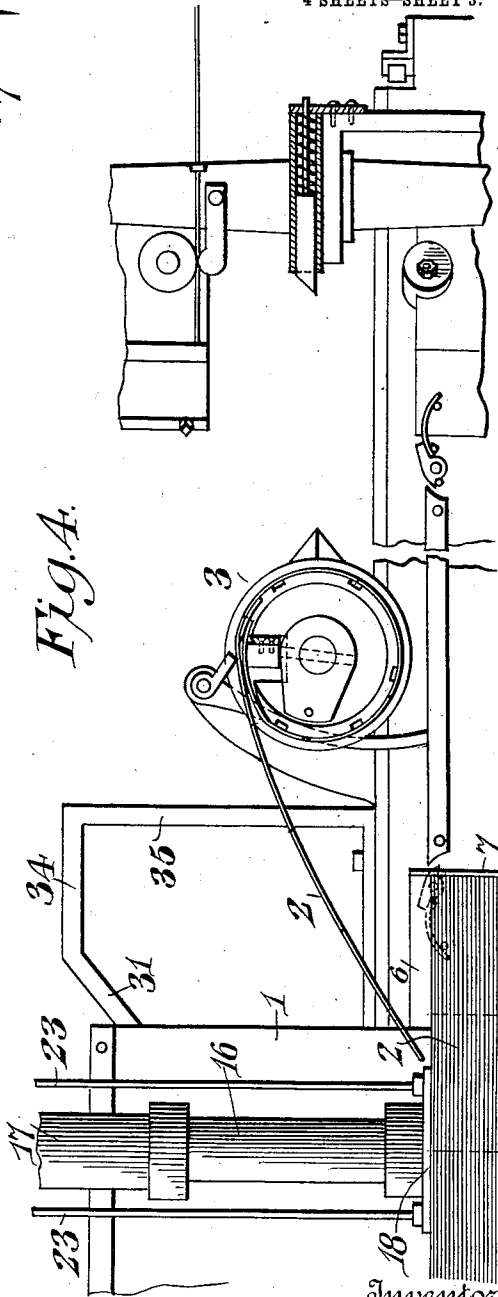


Fig. 4.

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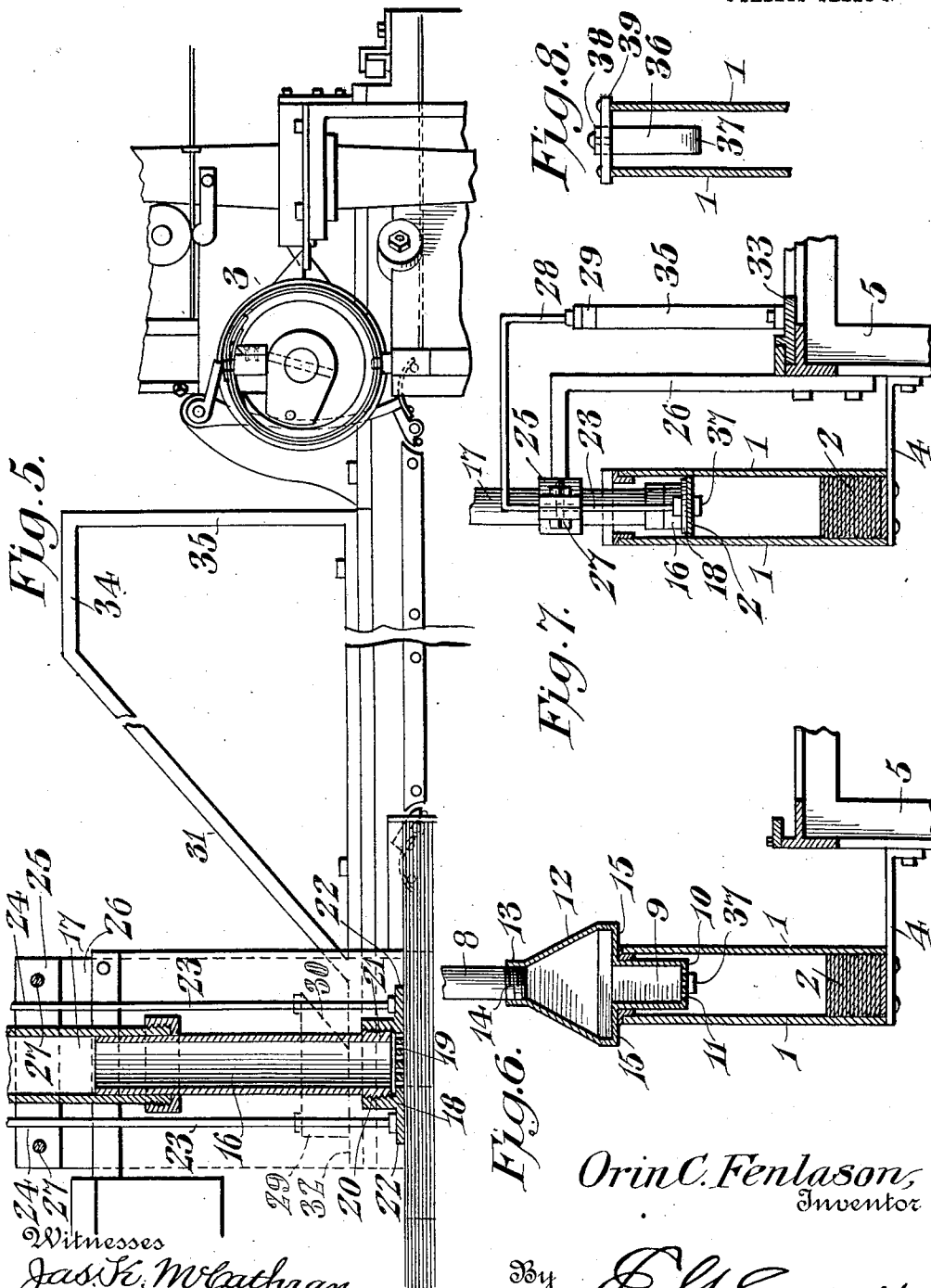


Fig. 5.

Fig. 8.

Fig. 7.

Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

ORIN C. FENLASON, OF HOQUIAM, WASHINGTON.

PNEUMATIC FEEDING MECHANISM FOR AUTOMATIC MACHINES FOR MAKING FOLDABLE OR COLLAPSIBLE BERRY-BOXES.

1,057,815.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Original application filed February 21, 1908, Serial No. 417,168. Divided and this application filed August 25, 1911. Serial No. 646,055.

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 Pneumatic Feeding Mechanism for Automatic Machines for Making Foldable or Collapsible Berry-Boxes, of which the following is a specification.

The invention relates to pneumatic feeding mechanism for an automatic machine for making foldable or collapsible berry boxes, and is a division of an application, filed Feb. 21, 1908, Serial No. 417,168, for an automatic machine for making foldable or collapsible berry boxes.

The object of the present invention is to improve the construction of pneumatic feeding mechanism, and to provide for veneer box making machines a simple, inexpensive and efficient pneumatically operated device, adapted to dispense with the mechanical means heretofore employed for feeding the veneer from the bottom of a pile or stack, and capable of positively taking a sheet of veneer from the top of a pile or stack and feeding the same to a form, whereby the veneer may be handled with greater rapidity and facility and without liability of injuring the same during the feeding operation.

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 side elevation of an automatic veneer box making machine, equipped with pneumatic feeding mechanism, constructed in accordance with this invention. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged detail sectional view, illustrating the construction of the magazine and the pneumatically operated means for feeding the veneer, the cylindrical head or form being in its initial position. Fig. 4 is an enlarged side eleva-

tion of the pneumatic feeding mechanism, the head or form being in an intermediate position. Fig. 5 is a longitudinal sectional view of the pneumatic feeding mechanism, the cylindrical form or head being at the limit of its rearward movement. Fig. 6 is a vertical sectional view on the line 6—6 of Fig. 1. Fig. 7 is a similar view, taken substantially on the line 7—7 of Fig. 1. Fig. 8 is a detail sectional view, taken substantially on the line 8—8 of Fig. 1.

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

The machine, which is shown, described and claimed in the aforesaid application, is equipped with a magazine 1 for the reception of sheets 2 of veneer, which are placed within the magazine in a stack or pile. The veneer is previously scored at intervals, and roller scoring, consisting of rows of spaced perforations, being preferably employed. Each sheet of veneer is wound around a head or form 3, and while the sheet of veneer is in the form of a hoop or band, its overlapped ends are secured together to form a box body. The resiliency of the veneer and the scoring of the same at the corners of the box cause the box body, when discharged from the head or form, to assume a rectangular shape. The magazine, which is arranged at one end of the machine, is mounted on a suitable bracket 4, secured to the front side of the frame 5 of the machine, as clearly illustrated in Fig. 1 of the drawings. The magazine, which is constructed of suitable metal, is composed of a horizontal bottom and vertical side walls, and it is provided at the inner or rear end with an extension 6, consisting of two sides and a transverse end wall 7, which forms a stop for the inner ends of the sheets of veneer, as clearly illustrated in Figs. 3 and 4 of the drawings. The inner end or portion of the magazine is arranged upon the bracket 4 at the front of the frame of the machine, and the outer end of the magazine is open to enable the sheets of veneer to be readily placed in the same.

The veneer is taken from the top of the pile or stack and is held in position to be fed to the head or form 3 by pneumatically operated means, consisting of a fixed vacuum or suction device and a vertically movable

vacuum or suction device. By taking the sheets of veneer from the top of the stack or pile, the veneer is handled more readily, and is not injured in the feeding operation, as it is when mechanical means are employed for feeding the sheets from the bottom of the stack or pile. The fixed vacuum or suction device comprises a vacuum tube 8 and a foot 9, located within the upper portion of the magazine and provided with a horizontal bottom 10, having perforations 11. The vacuum tube is connected with an exhaust or suction fan (not shown) of any preferred construction, and when a sheet of veneer is arranged against the perforated bottom of the fixed suction device, the suction created by exhausting the air within the foot and vacuum tube firmly holds the sheet of veneer flat against the bottom of the foot. The foot 9, which fits between the sides of the magazine, is provided with an enlarged upwardly tapered top portion 12, which is connected at its apex with the tube 8. The tapered or top portion 12 of the foot 9 is preferably provided with an interiorly threaded collar 13, and the lower end 14 of the vacuum tube 8 is threaded to engage the collar 13. The tapered upper portion 12 of the foot projects laterally beyond the sides of the magazine, and the laterally projecting portions form shoulders 15, whereby the foot is supported upon the upper edges of the sides of the magazine.

The suction device, which lifts the top sheet of veneer from the stack or pile to the fixed suction device, comprises a vertically movable vacuum tube 16, which telescopes into a stationary tube 17, connected with a suitable exhaust or suction fan (not shown). The vertically movable tube 16 is equipped at its lower end with a foot 18, presenting a flat lower face to the veneer and having perforations 19, communicating with the interior of the suction tube. The foot 18 is provided with an interiorly threaded socket 20 to receive the lower threaded end 21 of the vertically movable vacuum tube, and it has extensions 22 forming continuations of the bottom of the shoe and connected to the lower ends of vertically movable lifting rods 23. The lifting rods 23, which are located in advance and in rear of the tubes 16 and 17, are spaced from the same and extend through guide openings 24 of a clamp 25 of a substantially L-shaped bracket arm 26. The L-shaped bracket arm 26, which is secured to the frame of the machine at a point above the bracket 4, consists of an upwardly extending vertical portion and an outwardly extending horizontal portion. The clamp 25, which is sectional, engages the tube 17 and secures the same to the bracket arm 26, which forms a support for the said tube 17. The clamp 25, which is arranged horizontally, is composed of inner

and outer sections, the inner section being formed integral with the bracket arm and the outer section being detachably secured to the inner section by means of bolts 27. The lifting rods, which are approximately U-shaped, are composed of inner and outer vertical portions and top connecting portions, the outer vertical portions being secured to the foot of the vertical movable vacuum tube 16. The inner or rear vertical portions 28 of the lifting rods are connected with a shoe 29, provided with a beveled inner end 30 and arranged to be engaged by a horizontal reciprocable wedge 31. The shoe 29, which consists of a block or piece, is provided with a horizontal lower edge 32 and its inner beveled portion is wedge-shaped, the beveled edge extending downwardly and inwardly toward the central portion of the shoe. The wedge 31, which is mounted on a reciprocary carriage 33, consists preferably of an open frame having a horizontal bottom portion, an inclined actuating portion, a horizontal top supporting portion 34, and a vertical end portion 35. The inclined actuating portion of the reciprocary wedge engages the inclined edge of the shoe and lifts the tube 16, the wedge moving beneath the shoe until the horizontal top supporting portion 34 is carried beneath the horizontal bottom edge of the shoe, as illustrated in Fig. 3 of the drawings, and when the wedge is carried away from the shoe by the reciprocation of the carriage, the tube 16 is permitted to descend and rest upon the stack or pile of veneer within the magazine, the downward movement of the tube 16 being limited by the veneer. When the vacuum tube 16 is moved upwardly, it carries with it a sheet of veneer, which is conveyed to the stationary suction device, whereby it is held in position to be engaged by the rotary head or form 3.

The sheet of veneer carried upward by the suction device is properly positioned by means of a front guide 36, consisting of a lower curved guiding portion 37 and an upper vertical portion, arranged in spaced relation with the foot of the stationary suction device and forming a stop for the sheet of veneer. The guiding portion 37 curves downwardly and outwardly, and it guides the sheet of veneer in its upward movement. The guide 36 is provided at its top with a horizontal supporting arm 38, which is secured to a cross piece 39, mounted upon and supported by the upper edges of the sides of the magazine.

The sheet of veneer, which is supported by the feeding mechanism in position to be engaged by the rotary head or form, is gripped by mechanism carried by the head or form and is wound around the latter and is finally ejected from the head or form, as

fully explained in the said application. The rotary head or form engages with the projecting inner end of the sheet of veneer before it reaches the limit of its forward movement, whereby the veneer is buckled or bowed. This buckling or bowing of the veneer operates through the resiliency of the material to retain the edge of the same in engagement with the head or form until it is securely clamped by the gripping mechanism thereof. As the particular construction of the machine other than the feeding mechanism does not constitute a portion of the present invention, detail description thereof is deemed unnecessary.

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

1. Feeding mechanism including means for holding a stack or pile of veneer, means for taking the veneer sheet by sheet from the top of the stack or pile and for holding the same in a projecting position, and mechanism movable toward and from the feeding mechanism for engaging the projecting portion of the sheet to withdraw the same from the last-mentioned means, said mechanism operating to buckle or bow the veneer to cause the same through its resiliency to remain in engagement with the said mechanism until gripped by the same.

2. Feeding mechanism including means for holding a stack or pile of veneer, pneumatically operated means for taking the veneer sheet by sheet from the top of the stack or pile and for holding the same with one end projecting, and mechanism movable toward and from the feeding mechanism for engaging the projecting end of the sheet to withdraw the same from the pneumatically operated means, said mechanism operating to buckle or bow the veneer and cause the same through its resiliency to remain in engagement with the said mechanism until gripped by the same.

3. Feeding mechanism including means for holding a stack or pile of veneer, and pneumatically operated means including a movable vacuum or suction device for lifting the veneer from the top of the stack or pile sheet by sheet, and a fixed vacuum or suction device arranged in spaced relation with the stack to receive and hold the veneer in a projecting position.

4. Feeding mechanism comprising means for holding a stack or pile of veneer, and pneumatically operated means for taking the veneer from the top of the stack sheet by sheet and including a vertically movable vacuum or suction device, and a fixed vacuum or suction device arranged in spaced relation with the stack and in the path of the veneer.

5. In feeding mechanism, the combination of means for holding a stack or pile of

veneer, pneumatically operated means for taking the veneer from the top of the stack sheet by sheet and including a suction device movable upwardly and downwardly, and a fixed suction device arranged in the path of the veneer and adapted to receive the same from the movable suction device, and mechanism movable between the stack or pile and the lifted sheet for engaging the latter to withdraw the same from the fixed suction device.

6. In veneer feeding mechanism, the combination of a magazine arranged to receive a stack or pile of veneer, a vacuum or suction device provided with a fixed veneer engaging foot mounted at the upper portion of the magazine, means for lifting the veneer from the top of the stack or pile and conveying it to the fixed veneer engaging foot, and mechanism movable between the stack and the lifted sheet for engaging the latter and withdrawing the same from the vacuum or suction device.

7. In veneer feeding mechanism, the combination of a magazine arranged to receive a stack or pile of veneer, a stationary vacuum or suction device provided with a fixed veneer engaging foot mounted at the upper portion of the magazine, a vertically movable vacuum device having a veneer engaging foot operating in the magazine and arranged to lift a sheet of veneer from the top of the stack or pile and convey the said sheet to the fixed veneer engaging foot of the stationary vacuum or suction device, and means movable between the stack and the lifted sheet for engaging the latter to withdraw the same from the fixed veneer engaging foot.

8. In veneer feeding mechanism, the combination of a magazine arranged to receive a stack or pile of veneer, a stationary vacuum or suction device provided with a fixed veneer engaging foot mounted at the upper portion of the magazine, a vertically movable vacuum tube having a veneer engaging foot and arranged to lift a sheet of veneer from the top of the stack or pile and convey the said sheet to the fixed veneer engaging foot of the stationary vacuum or suction device, a veneer guide arranged in the path of the veneer for positioning the same, and mechanism movable between the stack and the lifted sheet for engaging the latter to withdraw the same from the stationary suction device.

9. In veneer feeding mechanism, the combination of a magazine arranged to receive a stack or pile of veneer, a vacuum or suction device having a fixed foot arranged at the upper portion of the magazine, a movable vacuum device arranged to lift a sheet of veneer from the top of the stack or pile and convey the said sheet to the fixed foot, a combined guide and stop arranged in the

- path of the veneer and having an inclined guiding portion for positioning the veneer, and mechanism movable between the stack and the lifted sheet for engaging the latter
5 to withdraw the same from the fixed veneer engaging foot.
- 10 10. In veneer feeding mechanism, the combination, of a magazine or holder arranged to receive a stack or pile of veneer, a fixed suction device located above the stack or pile, a movable suction device for
15 lifting a sheet of veneer from the top of a stack to convey the said sheet to the fixed suction device, and a reciprocable wedge for raising the movable suction device.
- 20 11. In veneer feeding mechanism, the combination, of means for holding a stack or pile of veneer, and feeding means including a vertically movable suction device arranged to lift a sheet of veneer from the
25 top of a pile or stack, a reciprocable wedge, and a shoe connected with the suction device and arranged in the path of the wedge and adapted to be moved upwardly by the same.
- 30 12. In veneer feeding mechanism, the combination, of means for holding a stack or pile of veneer, and feeding means including a stationary vacuum tube, a telescopic tube connected with the stationary
35 tube and provided with a veneer-engaging foot adapted to lift a sheet of veneer from the top of a stack or pile, and means for raising and lowering the telescopic tube.
- 40 13. In veneer feeding mechanism, the combination, of means for holding a stack or pile of veneer, and feeding means including a stationary vacuum tube, a telescopic tube connected with the stationary
45 tube and provided with a veneer-engaging foot adapted to lift a sheet of veneer from the top of a stack or pile, a vertically movable rod having spaced portions, one of the portions being connected with the said foot, a shoe connected with the other spaced
50 portion of the rod, and a reciprocable wedge arranged to engage and lift the shoe.
- 55 14. In veneer feeding mechanism, the combination, of means for holding a stack or pile of veneer, and feeding means including a stationary vacuum or suction device provided with guides, a vertically movable
60 tube telescoping into the stationary tube and having a veneer-engaging foot arranged to lift a sheet of veneer from the top of the stack or pile, rods connected with the foot and arranged in the said guides, a shoe also connected with the rods, and a reciprocable wedge arranged to engage and lift the shoe.
- 65 15. In veneer feeding mechanism, the combination, of means for holding a stack or pile of veneer, and feeding means including a stationary vacuum or suction tube, a telescopic tube having a veneer-engaging
70 foot, a shoe connected with the telescopic tube and provided with an inclined lower edge, and a reciprocable wedge arranged to engage the inclined lower edge of the shoe for raising the telescopic tube.
- 75 16. In veneer feeding mechanism, the combination, of a magazine provided at its inner or rear end with a stop and arranged to receive a stack or pile and having its outer or front end open, a combined guide
80 and stop located at the upper portion of the open end of the magazine to position the veneer properly with relation to the box forming mechanism, a fixed suction device mounted at the upper portion of the magazine and having a veneer-holding foot, and
85 a movable suction device for lifting a sheet from the top of the pile or stack to convey the said sheet to the stationary suction device.
- 90 17. In veneer feeding mechanism, the combination, of a magazine arranged to receive a stack or pile of veneer, and feeding mechanism including a fixed vacuum or suction device, and a foot disposed longitudinally of the top portion of the magazine
95 and provided with laterally projecting portions supported by the walls of the magazine, said foot being also provided with a tapered upper portion or hood connected with the fixed vacuum or suction device.
- 100 18. Feeding mechanism including means for holding a stack or pile of veneer, means for lifting the veneer sheet by sheet from the top of the stack, and guiding means arranged in the path of the veneer and engaging and holding the same in a projecting
105 position.
- 110 19. Feeding mechanism including means for holding a stack or pile of veneer, pneumatically operated means for lifting the veneer sheet by sheet from the top of the stack or pile, a fixed suction or vacuum device for supporting the veneer in position
115 to be engaged by the machine, and a guide also arranged in the path of and adapted to be engaged by the veneer in the upward movement thereof for moving the veneer in a projecting position with relation to the means for supporting the same.
- 120 20. Feeding mechanism including means for holding a stack or pile of veneer, vertically movable pneumatically operated means for taking the veneer sheet by sheet from the top of the stack or pile, and a
125 fixed vertical guide arranged in the path of the veneer and having a lower inclined guiding portion, the upper portion of the guide also constituting a stop for holding the veneer in a projecting position with relation to the means for supporting it in an elevated position.
- 130 21. Veneer feeding or supplying mechanism comprising means for holding a stack or pile of veneer, and mechanism for taking

the veneer sheet by sheet from the stack or pile, said mechanism including means for causing the veneer to buckle or bow during the feeding thereof, whereby the veneer through its resiliency is maintained in engagement with the mechanism to be fed or supplied.

22. Feeding mechanism including means for holding a stack or pile of veneer, means for taking the veneer sheet by sheet from the stack or pile, and mechanism movable toward and from the stack or pile and arranged to engage the veneer, and buckle or bow the same, whereby the veneer through its resiliency is maintained in such engagement until gripped by such mechanism.

23. Veneer feeding or supplying mechanism including means for holding a stack or pile of veneer in a relatively fixed position, and yieldable pneumatic means movable toward and from the stack for taking the veneer sheet by sheet from the top of the stack or pile, and means operable between the stack and the lifted sheet for engaging the latter to withdraw the same from the pneumatic means.

24. In veneer feeding mechanism, the combination with fixed means for holding a stack or pile of veneer, a stationary suction device having a fixed veneer engaging foot located above the stack or pile of veneer, pneumatic means movable upwardly and downwardly and arranged to lift a sheet of veneer from the top of a stack or pile and convey the said sheet to a fixed veneer engaging foot, said movable suction device being yieldable to maintain itself in coacting relation with the stack or pile as the latter decreases in size through the feeding of the sheets.

25. Veneer feeding or supplying mechanism including means for holding a stack or pile of veneer, and yieldable pneumatic feeding means for taking the veneer from the stack or pile, and means for reciprocating the pneumatic means to move the same to and from the stack or pile and to carry the sheets of veneer to a projecting position, and mechanism for engaging the projecting portion of the veneer to withdraw the same from the pneumatic feeding means.

26. Feeding mechanism including means for holding a stack or pile of veneer, means for taking the veneer sheet by sheet from the top of the stack and for holding the same in a projecting position, a stop for engaging the veneer at the edge opposite the projecting portion and adapted to cause the veneer to buckle when pressure is exerted on the said projecting portion.

27. Feeding mechanism including means for holding a stack or pile of veneer, means for taking the veneer sheet by sheet from the top of the stack or pile and for holding the same in a projecting position, mechanism movable toward and from the feeding means for engaging the projecting portion of the veneer, and a stop for holding the veneer against backward movement when engaged by the said mechanism, whereby the veneer is caused to buckle and through its resiliency is forced into engagement with the said mechanism.

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:

PERCY H. MOORE,
LEWIS EBERLY.