

No. 710,231.

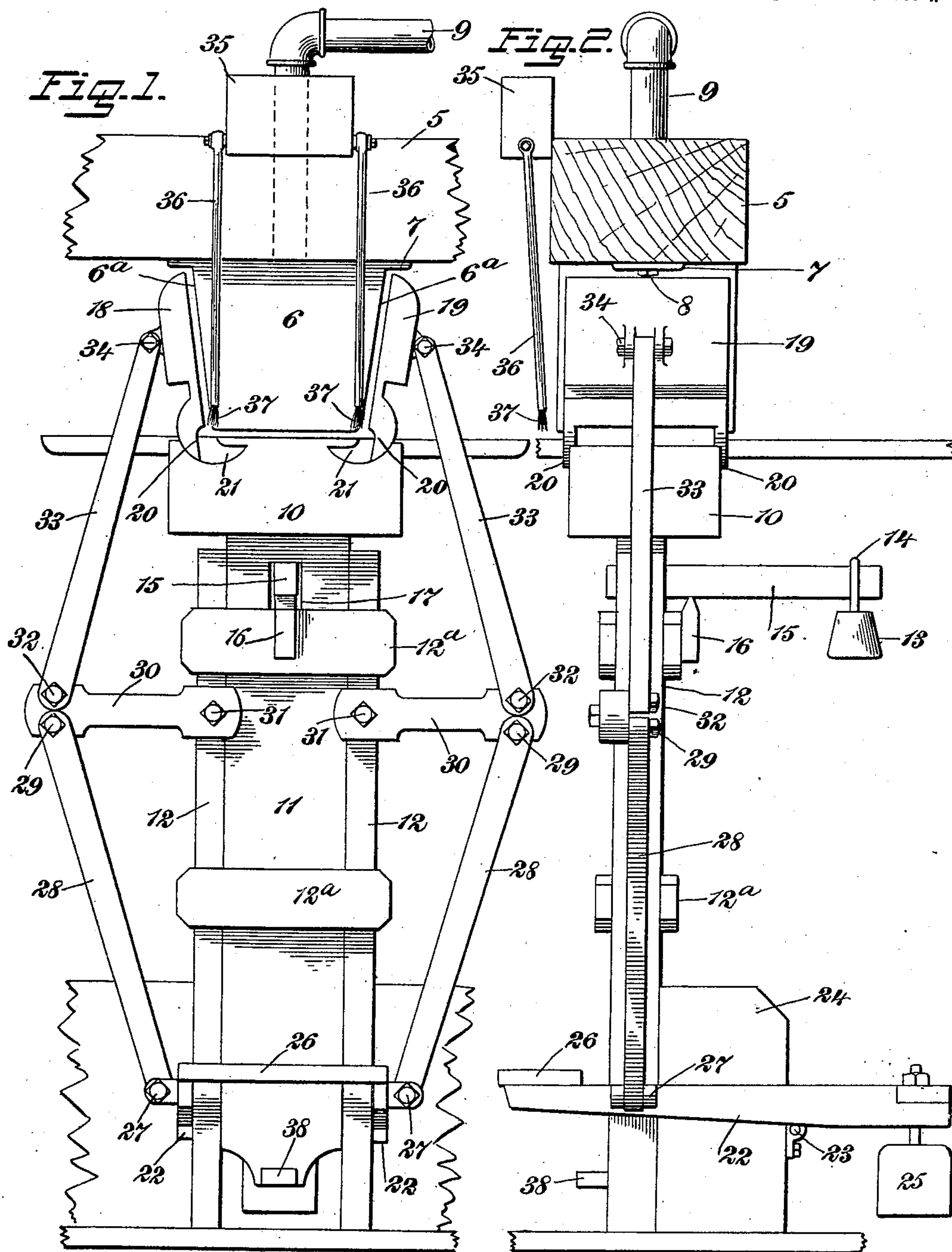
Patented Sept. 30, 1902.

E. ABER.
VENEER BENDING MACHINE.

(Application filed Feb. 4, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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INVENTOR

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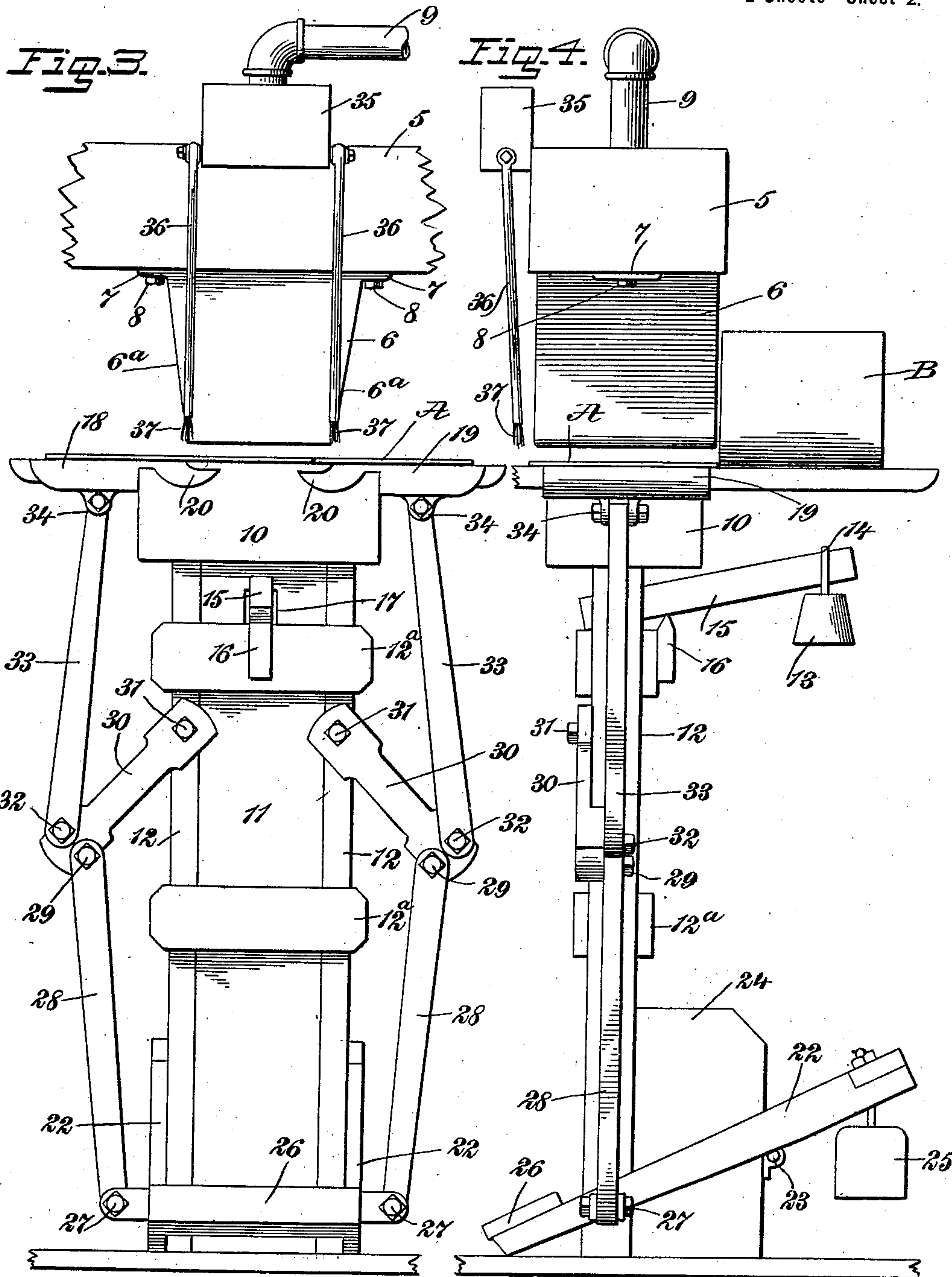
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UNITED STATES PATENT OFFICE.

EDGAR ABER, OF JACKSONVILLE, TEXAS.

veneer-bending machine.

SPECIFICATION forming part of Letters Patent No. 710,231, dated September 30, 1902.

Application filed February 4, 1902. Serial No. 92,519. (No model.)

To all whom it may concern:

Be it known that I, EDGAR ABER, a citizen of the United States, residing at Jacksonville, in the county of Cherokee and State of Texas, have invented certain new and useful Improvements in Veneer-Bending Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in veneer-bending machines, the same being more particularly adapted to the work of bending to the proper form and angle the several wooden sheets which constitute the sides, bottom, and ends of veneer baskets.

The objects of the present invention are, among other things, to bend the portions of a veneer with a comparative slow movement subsequent to sizing or moistening of the work and while it is in engagement with a heated form, thus giving the veneer an opportunity to become thoroughly heated during the bending operation and making it practicable to bend the stock very easily and to sharply or abruptly bend stock thick enough to make baskets for comparatively heavy use; to provide means for displacing the operating parts in an easy and quick manner, so as to facilitate the introduction of an unbent veneer and to eject a completed or bent piece of veneer-work; to provide means for moistening or dampening the stock automatically and on the proper lines when introducing the stock into the machine, and to simplify the construction, increase the efficiency of operation, and reduce the cost of manufacture.

With these ends in view my invention consists in the novel combination, construction, and arrangement of parts, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved veneer-bending machine, illustrating the leaves or movable members in their raised operative positions. Fig. 2 is another elevation looking in a direction at right angles to Fig. 1. Figs. 3 and 4 are views corresponding to Figs. 1 and 2, respectively, but showing the leaves or movable members and their

associated parts in lowered or reversed positions.

On the cross-bar 5 of a suitable framework is secured a heatable metallic form 6, the same being provided with laterally-extending flanges or ears 7, through which are passed the bolts 8, adapted to secure said form to the under side of the cross-bar. The form is provided with upwardly-diverging sides 6^a, as shown by Figs. 1 and 3; but this particular shape of the form is not material, because it may be given any desired contour, according to the style which is to be given to the veneer blank or stock. I prefer to employ a form which is cast in one or more pieces of metal and is of hollow form or construction. The chambered form is adapted to receive any suitable heating medium—such, for example, as live steam—which may be supplied through a pipe 9, adapted to carry the steam through the framework and into the chamber of the hollow suspended form.

10 designates a vertically-movable platen or "call," the same being disposed in opposing relation to the under side of the heatable suspended form 6. This platen lies below the form and it is mounted so as to be capable of vertical movement toward and from said form. As one means for mounting the platen I have shown it attached to the upper extremity of a vertically-movable post or column 11, the same being slidably confined for rectilinear movement between the vertical stationary guides 12 12 and their braces or connections 12^a 12^a. These guides may form a part of the framework of the machine or they may be secured within said framework so as to occupy the proper relation to the post 11. The post and the platen which is mounted thereon are normally urged in an upward direction by the inertia of a drop-weight 13, the latter being suspended, as at 14, from the long arm of a lever 15. Said lever is fulcrumed or hung at a point intermediate of its length on a fulcrum bar or block 16, which may form a part of the framework or which may be attached to the guides 12 or to their braces or connections 12^a, and the short arm of this counterweighted lever is operatively connected with the vertically-slidable post 11 by fitting said short

arm of said lever in a slot 17, which is formed in the post at a suitable point below the pressure-platen 10.

18 19 designate the bending leaves or members, which have hinged connection with the pressure-platen 10 and are disposed to cooperative relation to the heatable suspended form 6. Any suitable construction may be adopted for hinging these bending leaves or members to the form; but, as shown by the drawings, these leaves are provided with the extended hinge portions 20, arranged to fit in curved recesses 21, provided in the upper face of the pressure-platen 10. I would have it understood, however, that I do not desire to strictly confine myself to the particular hinged connection between the leaves and the platen, but I reserve the right to modify this hinged connection or to employ any equivalent therefor. The bending leaves or members are spaced with relation to each other on the platen so that they will fold in upward directions and on opposite sides of the bending-form, so as to cooperate with two sides of the latter. By hinging the leaves or members to the pressure-platen they are adapted to be moved or adjusted therewith, but said leaves are capable of a movement independent of that of the pressure-platen. This independent movement of the leaves is effected through a train of connections with one or more counterweighted levers 22, which tend to normally urge the leaves toward the heated bending-form, said levers being hinged or fulcrumed, as at 23, on a suitable part 24 of the framework. The levers are provided with one or more drop-weights 25, and they are connected at their opposite ends by a pressure bar or treadle 26. The levers, the drop-weight, and the treadle are all disposed at the lower part of the machine-frame, so that the treadle may be conveniently pushed downward by the application of foot-pressure. To the levers 22 are pivoted, as at 27, the lower ends of the links 28, said links having their upper ends pivoted, as at 29, to the intermediate levers 30, the latter being hung, as at 31, on the side guides 12 for the vertically-movable post 11. These levers 30 have the lower ends of another pair of links 33 pivoted to them, as at 32, and finally said links 33 are pivoted at their upper ends, as at 34, to the leaves or members 18 19, all as clearly shown by Figs. 1 and 3.

35 designates an elevated reservoir or fountain, which may be suitably supported on the cross-bar 5 of the framework, the said fountain adapted to be supplied with water or other liquid, which is intended to be applied to the veneer or stock just prior to its introduction into the machine. Communicating with the reservoir or fountain are the upright tubes 36, which are provided at the lower ends with the brushes 37, the latter being arranged quite close to the lower end of the heatable form 6 and across the path of feed

of the stock or veneer in placing the latter in the machine.

The lower portion of the vertically-movable post 11 is provided with a projection or cleat 38, which extends outwardly from said post and is disposed in the path of the treadle 26, the latter being carried by the counterweighted levers 22. When the post is held in its raised position by the lever 15 and the levers 22 are lowered to the positions shown by Figs. 1 and 2, the cleat or projection 38 lies wholly below the treadle 26. When the operator desires to lower the platen and the leaves away from the bending-form, pressure is applied by the foot on the treadle 26, thereby pulling downward on the links 28, the levers 30, and the links 33, so as to lower the leaves 18 19 into flush relation with the upper face of the platen. This downward movement of the leaves by the depression of the treadle 26 takes place before the treadle engages with the projection or cleat 38, and after the leaves shall have been lowered to their flush positions with relation to the platen the treadle 26 engages with the projection 38, so that the continued downward movement of the treadle not only lowers the leaves, but it also forces the post 11 and the platen downwardly. It will therefore be understood that the operation of the treadle in connection with the train of connections and the cleat 38 serves to first lower the leaves and thereafter or subsequently move the post and the platen away from the bending-form. This operation is advantageous, because the leaves occupy a flush relation with the platen when these parts are withdrawn from the bending-form, and a blank can now be thrust across the platen in a manner to eject the bent piece of work from the machine.

In the operation of the machine the attendant presses on the treadle 26, so as to lower the leaves 18 19 and subsequently move the post and the platen downwardly. The operator now places a blank or veneer stock, as A, in position on the platen 10 and the leaves 18 19, said blank or stock being shoved beneath the suspended form 6 and serving to displace or eject a previously-bent blank B from the machine, as indicated in Fig. 4. The foot-pressure is now removed from the treadle 26 and the weights 13 25, together with the levers 15 22, are released, whereby the weights and levers become active in raising the post 11 and the pressure-platen 10, together with the links, the levers, and the bending leaves or members 18 19. The weighted lever 15 quickly impels the lever and the pressure-platen in an upward direction, so that the platen will operate to clamp the blank or stock A between itself and the under face of the suspended form 6. On introducing the stock or blank A beneath the bending-form the brushes 37 sweep across the stock or veneer and moisten or dampen the latter on the lines where said stock or blank is to be bent.

The stock being clamped between the platen 10 and the form 6 is subjected to the bending action of the leaves 18 19, which are forced to turn on their hinged connections with the
 5 platen by the action of the weighted levers 22, transmitted through the train of connections formed by the links and the levers. The upward folding movement of the leaves or members is effected automatically by the
 10 action of the weighted levers 22, and this folding movement of said leaves or members is carried out in a comparatively slow manner, whereby the blank or stock is bent by and between the cooperating form and the members
 15 18 19, and the stock is given an opportunity to become thoroughly heated by contact with the form 6 during the comparatively slow bending operation, which is effected by the inward folding movement of the leaves or
 20 members. The bending operation having been completed, the operator applies pressure to the treadle 26, so as to again lower the platen 10 and the leaves or members 18 19, after which the operation of introducing another blank is
 25 repeated, so as to automatically eject or displace the previously-bent blank.

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

30 1. A bending-machine comprising a form, a flat platen movable toward and from said form, flat bending-leaves hinged to said platen and arranged to fold outwardly into flush relation therewith, levers having means for urging
 35 said leaves and the platen independently of each other toward said form, and an operating device related to said levers to first move the leaves flush with the platen and thereafter withdraw the leaves and the platen away
 40 from said form.

2. A bending-machine, comprising a bending-form having means for heating the same, a platen movable relatively thereto, bending-leaves having means for normally urging
 45 them toward said form, and moistening devices adjacent to the form and disposed in the path of feed of the work to the platen, said moistening devices adapted to apply moisture to the work along the lines of the
 50 crease or fold on the introduction of the work between the form and the platen.

3. A bending-machine, comprising a heatable form, a platen having means for normally urging the same toward said form, bending-leaves hinged to said platen, and independent means for normally urging the bending-leaves toward the form.
 55

4. A bending-machine, comprising a suspended heatable form, a platen disposed below
 60 said form and having means for urging the

same toward the form, leaves having hinges located below the active face of the platen, said leaves arranged to lie flush with said platen, and independent means for urging the members normally toward said form. 65

5. A bending-machine, comprising a heatable form, a platen normally urged toward said form, bending-leaves movable relative to the platen and the form, and moistening devices having brushes disposed at the sides of
 70 the form and in the path of feed of the work to said platen.

6. A bending-machine comprising a form, a slidable post carrying a platen and movable with relation to said form, means for normally
 75 urging said post and the platen toward said form, bending-leaves hinged to the platen, levers having tension devices for normally urging said leaves toward the form and independently of the movement of the platen, and
 80 means for withdrawing the platen subsequent to the retraction of the bending-leaves from the form.

7. A bending-machine comprising a form, a platen cooperating therewith, a tension-controlled lever for normally urging said platen
 85 toward the form, bending-leaves movable relative to said platen and said form, tension-controlled levers having a train of operative connections with said leaves and normally
 90 urging the latter toward the form independently of the platen, and means for depressing the leaves flush with the platen and subsequently withdrawing the platen and the leaves from the form. 95

8. A bending-machine, comprising a form, a platen movable relative thereto, bending-leaves in cooperative relation to the form, an elevated fountain or reservoir, and moistening-brushes disposed at the sides of the form
 100 and having operative connection with said fountain or reservoir.

9. A bending-machine, comprising a form, a platen disposed in cooperative relation to the form and provided in its active face with
 105 undercut recesses, bending-leaves having projections slidably fitted in said recesses and hinging the leaves to said platen so as to fold flush therewith, the downward movement of said leaves being limited by the projections
 110 abutting the closed ends of said recesses, and means for actuating said platen and said leaves.

In testimony whereof I have signed my name to this specification in the presence of
 115 two subscribing witnesses.

EDGAR ABER.

Witnesses:

MARTIN EARLE,
 H. H. COBBLE.