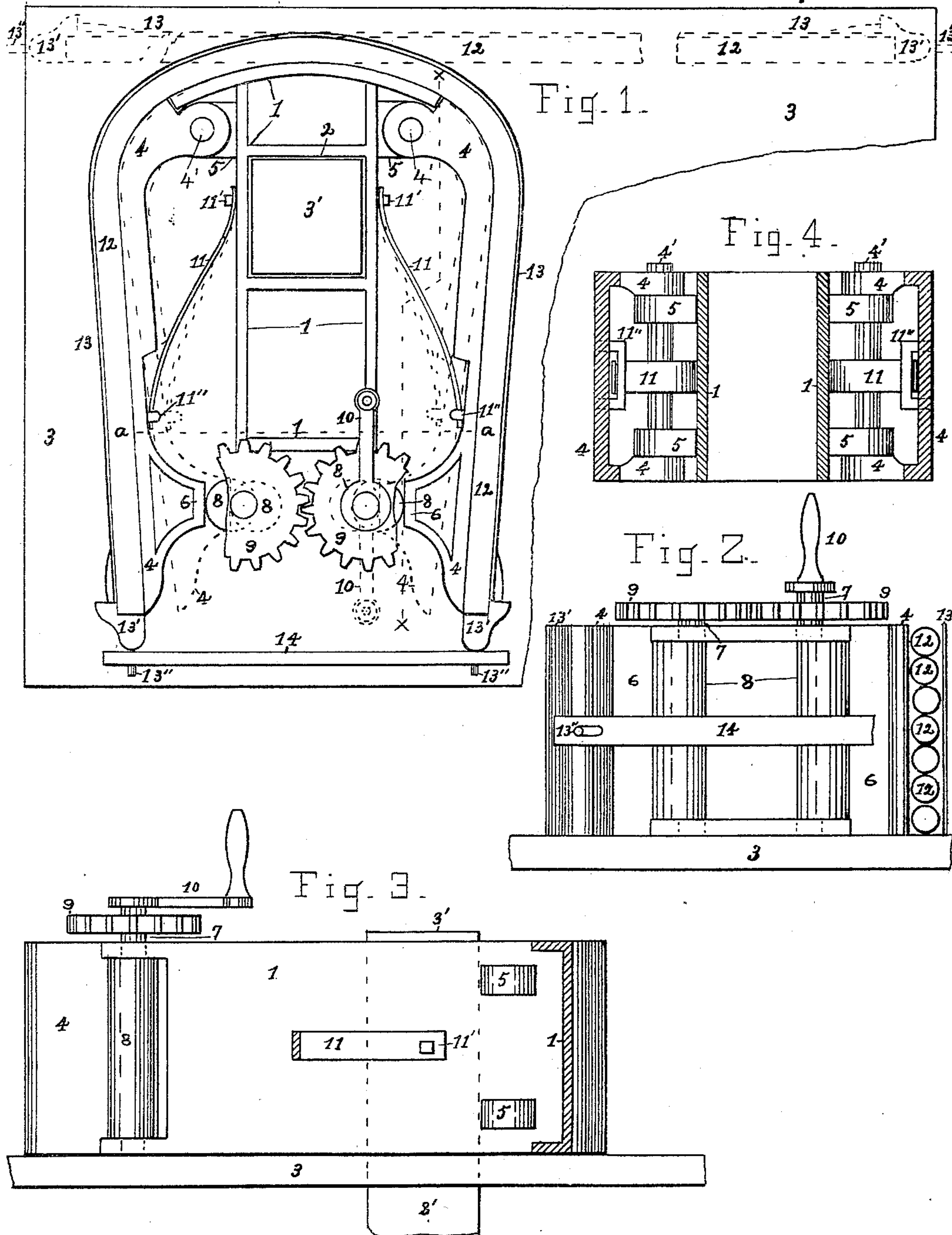


(No Model.)

A. WALBRUNN.  
WOOD BENDING FORM.

No. 424,523.

Patented Apr. 1, 1890.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## WOOD-BENDING FORM.

SPECIFICATION forming part of Letters Patent No. 424,523, dated April 1, 1890.

Application filed June 15, 1889. Serial No. 314,501. (No model.)

*To all whom it may concern:*

Be it known that I, ANTON WALBRUNN, a citizen of the United States, residing at Menasha, in the county of Winnebago and State of Wisconsin, have invented a new and useful Improvement in Wood-Bending Forms, of which the following is a specification.

My invention relates to an improved form upon which to bend chair-backs, ox-bows, and other articles of wood which it may be desired to bend into a bow by steaming the wood and forming it while warm and moist into the desired shape, and in which shape it must be retained until dried and said shape made permanent; and the object of my improvement is to dispense with a large number of fixed forms upon which the material is bent, and upon which it has heretofore been necessary to let it remain until dry and its shape established. I accomplish this object by the device illustrated in the accompanying drawings, in which--

Figure 1 is a top view of the form and representing the top one of a series of chair-backs bent around and secured upon it. Fig. 2 is an end view of the front end of the same, a part of the sheet-metal band attachment upon the right hand side of it which is used for securing the several chair-back pieces upon the form being omitted in order to show the arrangement of said chair-back pieces when bent around the form. Fig. 3 is a vertical section of the body of the form upon the line *xx* of Fig. 1; and Fig. 4 is a transverse section of the form upon the line *aa* of Fig. 1, as seen in looking toward its rear.

Similar figures of reference indicate like parts in the several views.

The figure 1 indicates the body of the form; 2, a rectangular socket therein; 3, a bench-top upon which the bending-form rests; 3', a post projecting upward from the bench-top and fitted to enter the socket 2, and which retains the form in position upon the bench; 4, wings hinged to ears 5 upon the body of the form by the pins 4'; 6, inward-projecting parts of the wings 4; 7, shafts having eccentrics 8 formed thereon between their extremities and carrying upon their upper ends gears 9, one of said shafts having also a crank 10. 11 are springs; 12, pieces of wood of the required length and shape for chair-backs;

13, a sheet-metal strap having riveted to it upon each of its ends castings 13', said castings having pins 13'' projecting therefrom; 55 and 14, a bar of wood for holding the ends of the aforesaid straps when placed around the series of chair-backs and bent around the form.

The body 1 of the form consists of an iron casting of the required length and of the height necessary for bending the number of pieces it is desired to bend at one time. The post 3' upon the bench 3 fitting loosely in the socket, the form can be quickly and easily removed and another of a different size substituted, while it is securely held while material is being bent.

Upon each side of the body of the form are ears 5, upon which the wings 4 are hinged by the pins 4'. These wings may be of any particular shape required for producing the desired shape to the article to be bent upon the form. They have near their forward ends the projections 6. Journaled in the body of the form are shafts 7, having the eccentrics 8, and upon their upper ends carrying the gears 9 9, a part of said gears being broken away in Fig. 1, and showing the point of contact of the eccentrics and the aforesaid projections 6. The gears are in gear with each other, and by means of the crank 10 the eccentrics can be revolved by the operator. The shafts 7 are adapted in position for expanding or contracting the width of the form by means of a half-revolution of the aforesaid eccentrics. They being turned outward and engaging with the projections 6 upon the wings, the form is expanded to its extreme width, the eccentrics and wings assuming the position shown in heavy lines, while upon turning the eccentrics inward they take the position indicated by the dotted lines. The springs 11 are bolted to the body of the form by the bolts 11', and their free end is connected loosely with the wings 4 by its insertion within the staple or keeper 11''. The springs are adapted in shape to contract the width of the form by drawing the wings toward each other as the eccentrics are turned inward.

The operation of the device is as follows: The form is placed upon the post 3' and expanded to its full size. A number of pieces of wood adapted for the desired article are then



placed, after being properly steamed, upon the strap 13, and said strap and pieces placed at the back side of the form, as shown in Fig.

1. Power is then applied to the ends 13' of the strap and said strap and wood gradually bent around the form until the ends of said wood are brought to a stop by contact with the outer ends of the wings, when the bar 14 is placed upon the pins 13'', retaining said strap and the pieces therein in the shape of the bending-form.

The power that is used in bending the wood as above described and the particular manner of its application is no part of my present invention, any of the devices which are well known and have long been in use by manufacturers of "bent stock" being applicable. In bending a light class of work and a few only at one time manual labor alone will often be found applicable. The practice previous to my invention has been similar to the bending operation as above described, and the pieces of wood permitted to remain upon the bending-form until dry before removal, or the form released for use with another lot or strap full of pieces. This method requires a large number of forms, sufficient in shops where the bending operation is required to be continuous to supply the operatives with forms until the bent wood is sufficiently dry to retain its shape after being taken from the form. By the use of this improvement this large number of forms is dispensed with, one form only being required for continuous operation thereof. By permitting the wings to approach each other, as has been described, the width of the form is diminished, whereby the strap and its contents of bent pieces may be easily lifted off of the form and laid aside for drying, when the form, being expanded by a half-turn of the crank 10, is ready to receive another lot or strap full of pieces, which upon being bent are treated in a similar manner, again relieving the form, and making thereby the bending operation continuous and a single form to perform the work of many.

The advantages arising from the use of this

improvement are, a less number of forms are required, and consequently a diminished cost for them, a less amount of storage-room for said forms, and less labor of the operatives in placing and removing the forms and the bent material upon them.

Having thus described my invention and the manner of its operation, what I claim, and desire to secure by Letters Patent, is—

1. A bending-form of the class described, consisting of a main body having wings hinged thereto near one end thereof upon two of its sides, and the width of said form adapted to be made more or less by the movement of the outer end of said wings toward and from each other, and means for retaining said wings at either extremity of said movement, substantially as described.

2. In a bending-form of the class described, the combination, with the main body thereof, of two wings, one end of each wing being hinged near one end of said main body upon opposite sides thereof, the shafts 7, journaled in said main body and having the eccentrics 8, the gears 9, and crank 10 thereon, said shafts and eccentrics being adapted in position by their partial revolution to move said wings from each other, and thereby expand the width of said form, substantially as set forth and described.

3. In a bending-form of the class described, the combination, with the main body thereof, of two wings, one end of each wing being hinged near one end of said main body upon opposite sides thereof, the shafts 7, journaled in said main body and having the eccentrics 8, the gears 9, and crank 10 thereon, said shafts and eccentrics being adapted in position by their partial revolution to move said wings from each other, and thereby expand the width of said form, and the springs 11, adapted for drawing said wings toward each other, and contracting thereby the width of said form, substantially as described.

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Witnesses:

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