M. M. AYES.

HAT FRAME MACHINE.

APPLICATION FILED FEB. 15, 1911.

1,017,841. Patented Feb. 20, 1912.

Fig. 1.

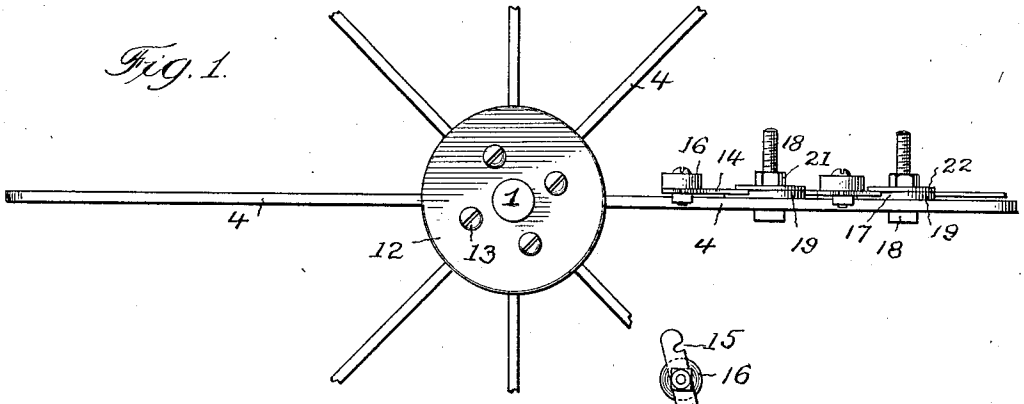


Fig. 2.

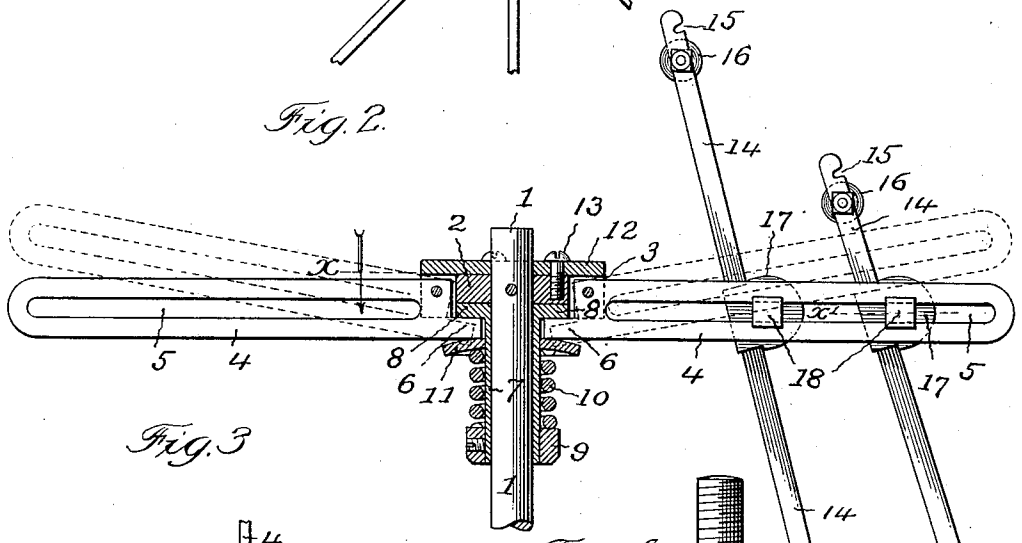


Fig. 3

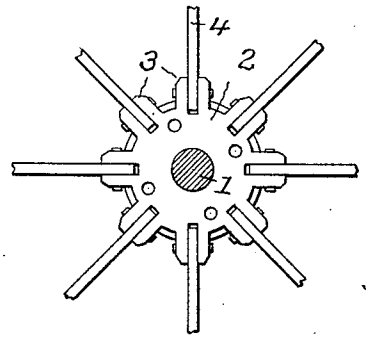


Fig. 4.

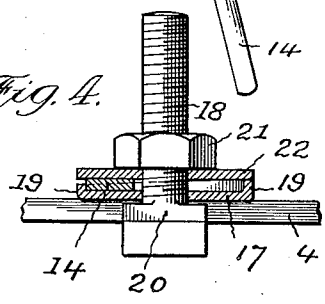


Fig. 6.

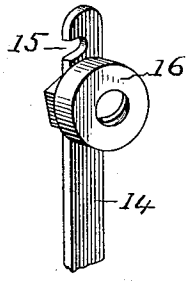


Fig. 5.

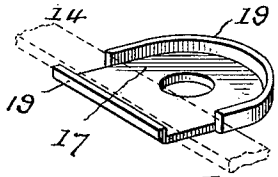
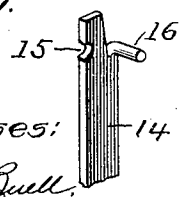


Fig. 7.



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HAT-FRAME MACHINE.

1,017,841. Specification of Letters Patent. Patented Feb. 20, 1912.

Application filed February 15, 1911. Serial No. 608,788.

To all whom it may concern:

Be it known that I, MATT M. AYES, a citizen of the United States of America, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Hat-Frame Machines, of which the following is a specification.

This invention relates to that class of machines for forming the skeleton wire frame of ladies' hats, in which a series of adjustable pattern forming fingers are arranged in separated relation around a central point, and upon which fingers the operator wraps the wire in forming the hat frame. And the present improvement has for its object to provide a simple and efficient structural formation and combination of parts involving a ready and convenient contraction of the pattern fingers, as a whole, to admit of the removal of the hat frame when completed, all as will hereinafter more fully appear.

In the accompanying drawings:—Figure 1 is a fragmentary plan view of a forming mechanism embodying the present invention. Fig. 2 is a central sectional elevation of the same. Fig. 3, is a detail horizontal section on line x—x, Fig. 2. Fig. 4, is a detail horizontal section on line x'—x', Fig. 2. Fig. 5, is a detail perspective view of one of the attaching clips of the pattern forming fingers. Figs. 6 and 7 are detail perspective views of the free ends of different types of pattern forming fingers.

Similar reference numerals indicate like parts in the several views.

Referring to the drawings, 1 represents the fixed vertical spindle or standard upon which the present hat frame forming mechanism is supported at the proper height.

2 is a spider, the hub of which is pinned or otherwise secured to the standard 1. The arms 3 of said spider extend radially from the hub and are adapted for pivotal connection of the horizontal supporting bars hereinafter described.

4 are the horizontal supporting bars, above referred to, and which in their normal condition extend radially in a horizontal plane from the spider 2, aforesaid. Each of said arms is formed with a longitudinal slot 5 extending the greater portion of the length of an arm and adapted to receive the clamping bolts by which the pattern forming fingers are secured at the desired locations upon said supporting bars. The pivotal attachment of the supporting bars 4 to the spider arms 3 are made near the inner and upper corners of said bars, and in connection with said particular pivotal connection of the bars, the same are provided at their inner and lower corners with extension heels or lugs 6, adapted for engagement with the hereinafter described holding sleeve to maintain the bars in their normal horizontal position.

7 is the holding sleeve above referred to, arranged loose upon the supporting standard 1. In the present construction said sleeve is provided with a fixed upper flange or rim 8, that has bearing upon the upper surfaces of the lugs 6 of the supporting bars 4 aforesaid, and at the other end with a removable collar 9 which forms an abutment for the compression spring 10 which surrounds the holding sleeve 7 as shown.

11 is a collar sliding upon the holding sleeve 7, and having bearing upon the upper end of the spring 10 aforesaid. Said collar is preferably formed with a convex upper surface which bears against the under surfaces of the aforesaid lugs 6, and through the stress of the spring 10, tends to hold the supporting bars 4, in their normal horizontal position indicated in full lines in Fig. 2 of the drawing.

12 is a stop disk, secured to the top of the spider 2 by screws 13, or other attaching means, which permits of a limited vertical adjustment of said stop disk 12 with relation to the spider 2, and so that the amount of upward pivotal movement, hereinafter described, of the supporting bars can be varied to suit the different requirements arising in the manufacture of different patterns of hat frames.

14 are the pattern forming fingers, of the usual elongated bar type shown, and which in the present improvement are each formed with the usual receiving notch 15 for the circumferential frame wire, and with a lateral extension 16 for the intersecting wire which forms the top and sides of the crown of the skeleton wire hat frame. Heretofore the bend in said intersecting wires to form the edge of the crown was made over the circumferential wires by hand, and it was a difficult matter to obtain uniform bends with a resulting uniform formation of such crown edge. With the present lateral extension 16, the bends can be readily made over

the same, in a very uniform manner and with a common radius to attain uniformity of the edges of the crown on the completed hat frame. To such end extra pattern forming fingers may be provided in connection with each machine, and the same provided with reduced lateral extensions as illustrated in Fig. 7, while others will have like lateral extensions of greater diameter, as illustrated in Fig. 6, with a view to form a crown edge of any required shape.

17 are the attaching clips by which the pattern forming fingers 14 are secured in an adjustable manner to the horizontal supporting bars 4, aforesaid. In the present construction said clips are formed with an approximately central orifice, for the passage of the clamping bolt 18 by which the parts are held to their engagement, and with a marginal flange 19 which is cut away to one side of the bolt orifice aforesaid to form receiving recesses for the pattern forming fingers 14. And a material feature in connection with the described construction consists in making the part of the flange 19, at the side of the bolt orifice opposite to that at which the aforesaid receiving recesses are formed, of a greater height so as to provide a pivotal abutment for the intermediate washer now to be described, and so that said washer may have effective bending action against the adjacent side of the pattern forming finger lying in the aforesaid receiving recesses. The clamping bolt 18 is preferably formed with a non-circular portion 20 adjacent to its fixed head for non-turning engagement in the slot 5 of the supporting bars 4 aforesaid.

21 is a nut screwing upon the screw-threaded shank of the clamping bolt 18, aforesaid.

22 is the disk or washer above referred to, and which is arranged beneath the clamping nut 21, with one side having a fulcrum bearing upon the higher portion of the clip flange 19, and with the other side bearing upon the pattern forming finger 14. With the described construction a very effective clamping of said finger is effected by tightening the nut 21. When a cluster of pattern forming fingers are held by a single clamping bolt 18, a series of clips 17, superimposed one upon the other, will be used, and a single disk or washer 22, used at the outside of the series of clips. With the present mechanism, the required number of pattern forming fingers 14 will be secured in the desired positions upon the horizontal supporting bars 4, by the holding clips 17 and accessories, above described, and the winding and bending of the wires to form the skeleton hat frame performed in the usual manner. With the completion of the hat frame, and in order to release the same, the operator by grasping two opposed horizontal bars 4, can tilt the same upward in a manner indicated in dotted lines in Fig. 2, so as to cause a movement of the pattern fingers 14 toward the center of the mechanism and a release of said fingers from holding engagement with the formed hat frame. In the described tilting movement of the two opposed supporting bars 4, the heels or lugs 6 thereof act to pry apart the rim 8 and sliding collar 11 against the stress of the spring 10, and in such prying apart the rim 8 moves downward a less degree than the sliding collar 11, and in such downward movement said rim 8 acts against the heels or lugs 6 of all the other horizontal supporting bars 4 to impart a tilting movement to all the other bars of the series equal to that which is manually imparted to the above mentioned pair of opposed bars 4.

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

1. In a hat frame machine, the combination of a vertical standard, a spider attached to said standard and provided with peripheral pivot arms, a series of horizontal supporting bars pivoted at their inner ends to said pivot arms, a vertically movable sleeve arranged upon the standard and having a fixed upper flange or rim bearing upon the inner ends of the horizontal bars aforesaid, a support at the lower end of the sleeve for a spring, a sliding collar on said sleeve having bearing beneath the inner ends of the horizontal bars aforesaid, a spring interposed between the sliding collar and the spring support of the sleeve, and a series of pattern forming fingers secured to the horizontal bars aforesaid, substantially as set forth.

2. In a hat frame machine, the combination of a vertical standard, a spider attached to said standard and provided with peripheral pivot arms, a series of horizontal supporting bars pivoted at their inner ends to said pivot arms, the said bars having at their inner and lower corners inwardly extending lugs, a vertically movable sleeve arranged upon the standard and provided with a fixed upper flange or rim bearing upon the inner ends of the horizontal bars aforesaid, a spring support at the lower end of said sleeve, a sliding collar on said sleeve having bearing beneath the lugs at the inner ends of the horizontal bars aforesaid, a spring interposed between the sliding collar and the spring support of the sleeve, and a series of pattern forming fingers secured to the horizontal bars aforesaid, substantially as set forth.

3. In a hat frame machine, the combination of a vertical standard, a spider attached to said standard and provided with peripheral pivot arms, a series of horizontal supporting bars pivoted at their

inner ends to said pivot arms, a vertically movable sleeve arranged upon the standard and having a fixed upper flange or rim bearing upon the inner ends of the horizontal bars aforesaid, a support at the lower end of said sleeve for a spring, a sliding collar on said sleeve having bearing beneath the inner ends of the horizontal bars aforesaid, a spring interposed between the sliding collar and the spring support of the sleeve, a stop disk secured in a vertically adjustable manner to the top of the spider, and a series of pattern forming fingers secured to the horizontal bars aforesaid, substantially as set forth.

4. In a hat frame machine, the combination of a vertical standard, a spider attached to said standard and provided with peripheral pivot arms, a series of horizontal supporting bars pivoted at their inner ends to said pivot arms, the said bars having at their inner and lower corners inwardly extending lugs, a vertically movable sleeve arranged upon the standard and provided with a fixed upper flange or rim bearing upon the inner ends of the horizontal bars aforesaid, a spring support at the lower end of said sleeve, a sliding collar on said sleeve having bearing beneath the lugs at the inner ends of the horizontal bars aforesaid, a spring interposed between the sliding collar and the spring support of the sleeve, a stop disk secured in a vertically adjustable manner to the top of the spider, and a series of pattern forming fingers secured to the horizontal bars aforesaid, substantially as set forth.

Signed at Chicago, Illinois, this 16th day of February 1911.

MATT M. AYES.

Witnesses:
ROBERT BURNS,
HENRY MOE.