

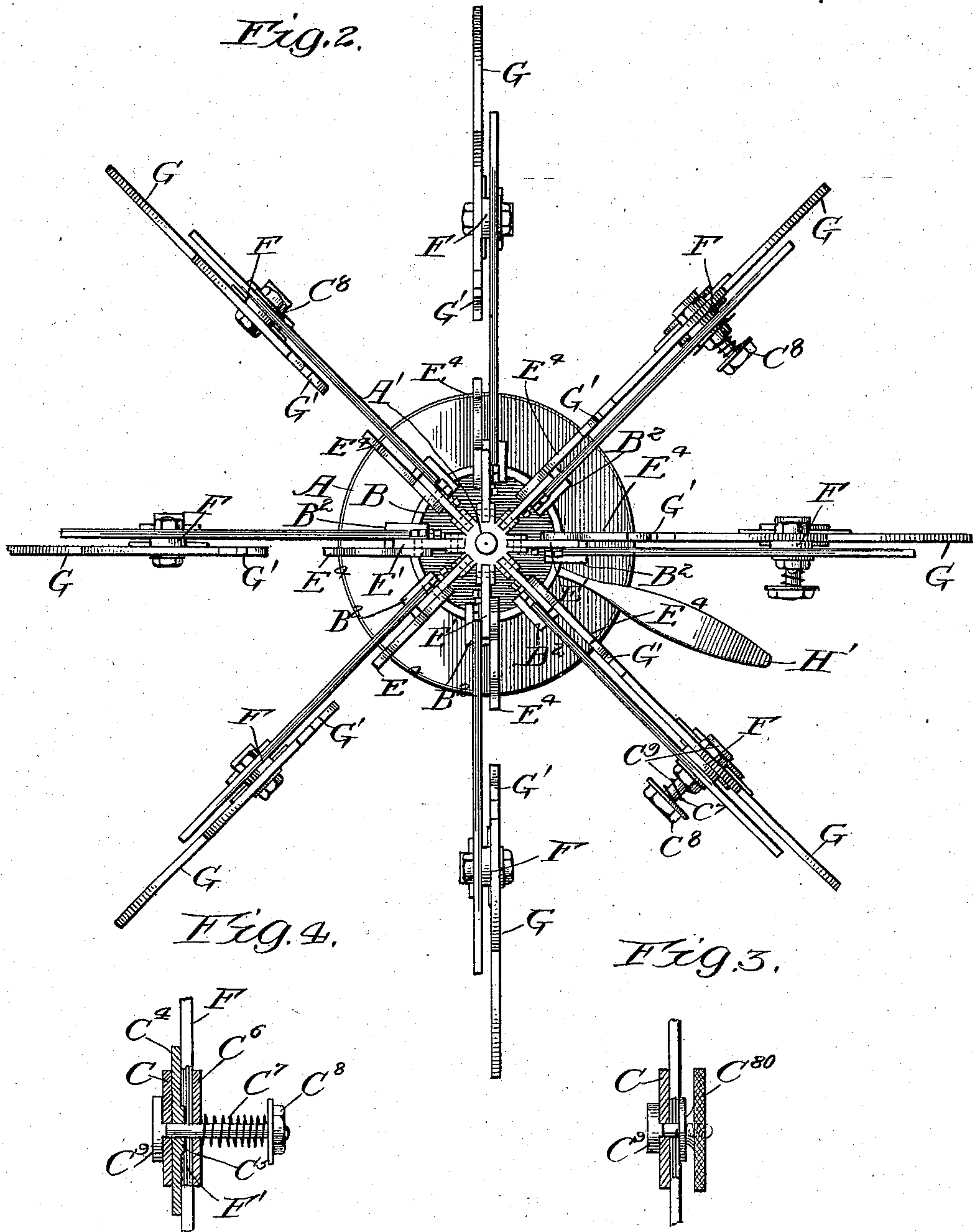
No. 881,257.

PATENTED MAR. 10, 1908.

J. NATTENHEIMER.
HAT FRAME FORMING DEVICE.

APPLICATION FILED APR. 30, 1906.

3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 9.

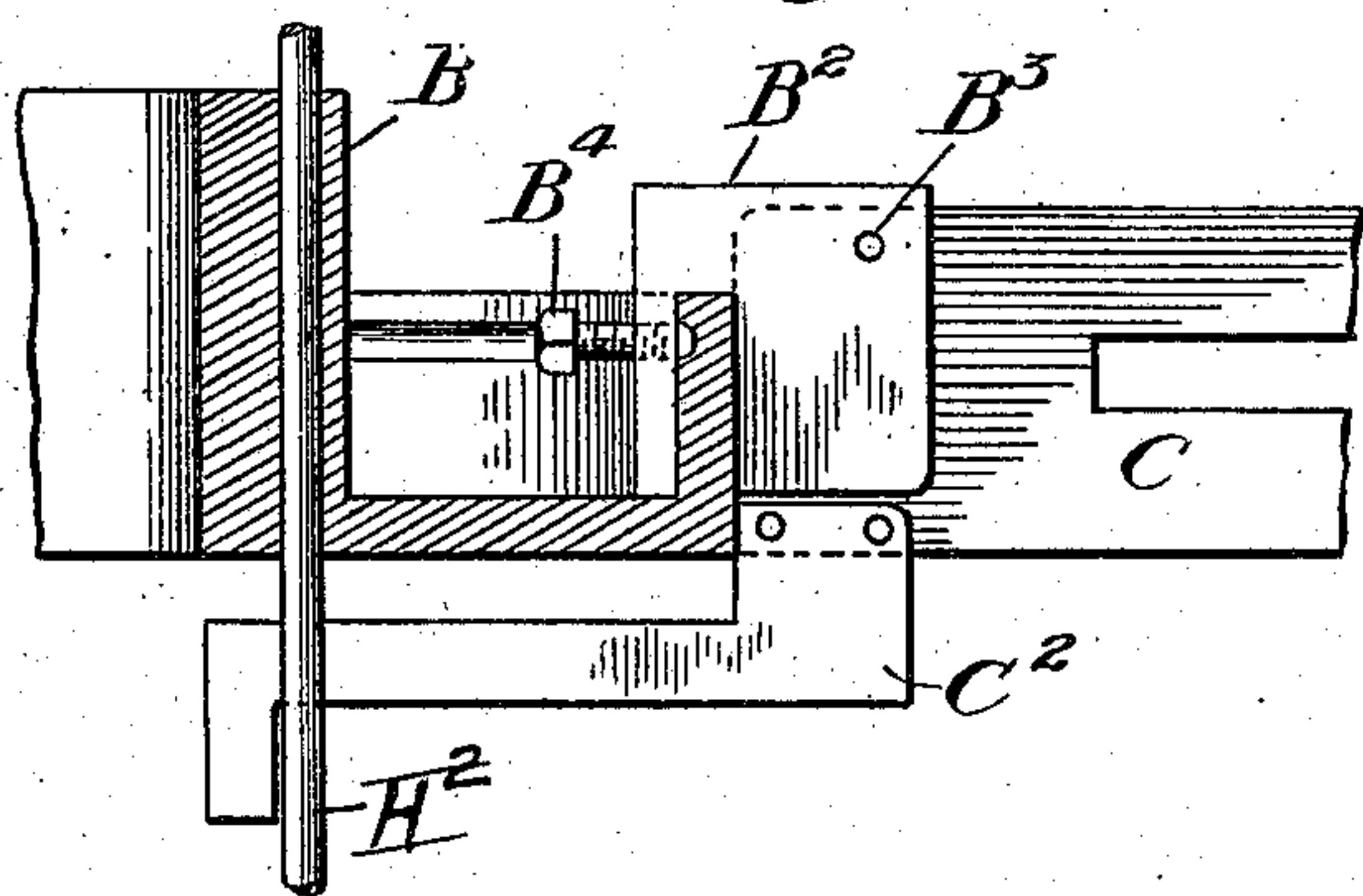


Fig. 11.

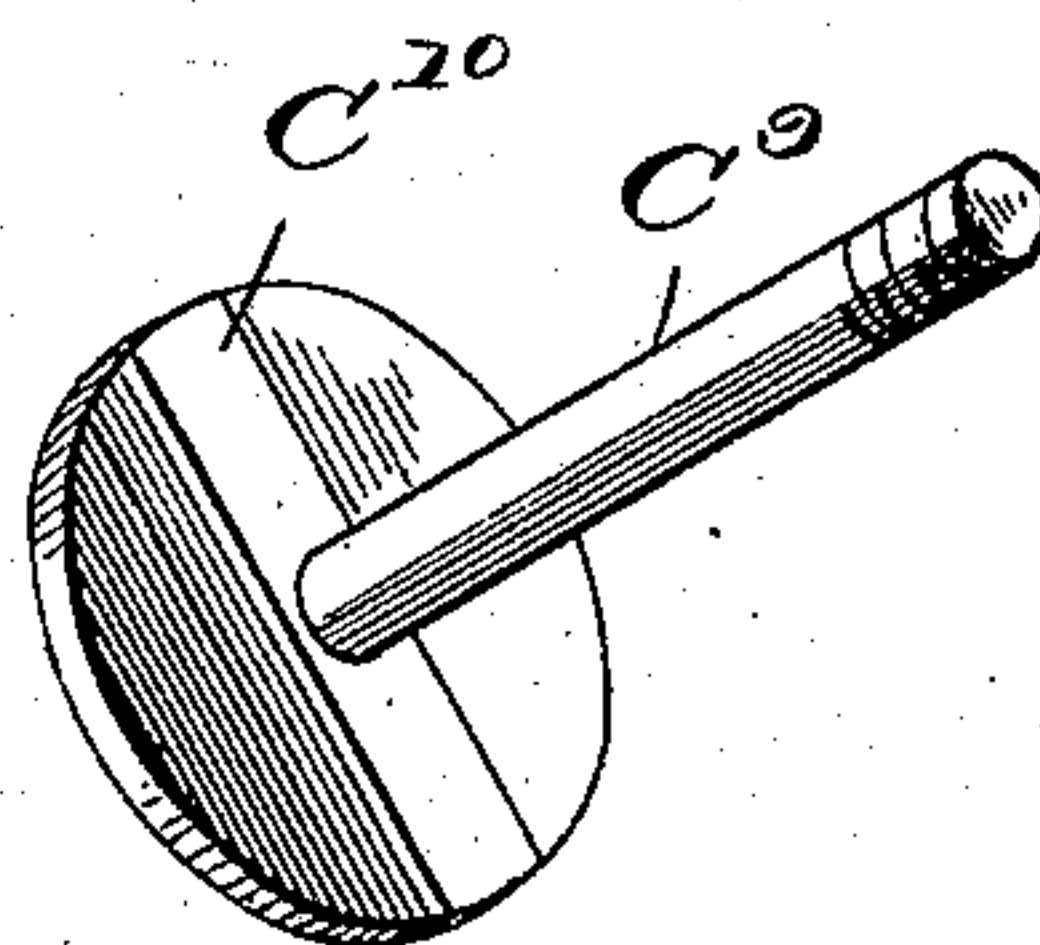


Fig. 10.

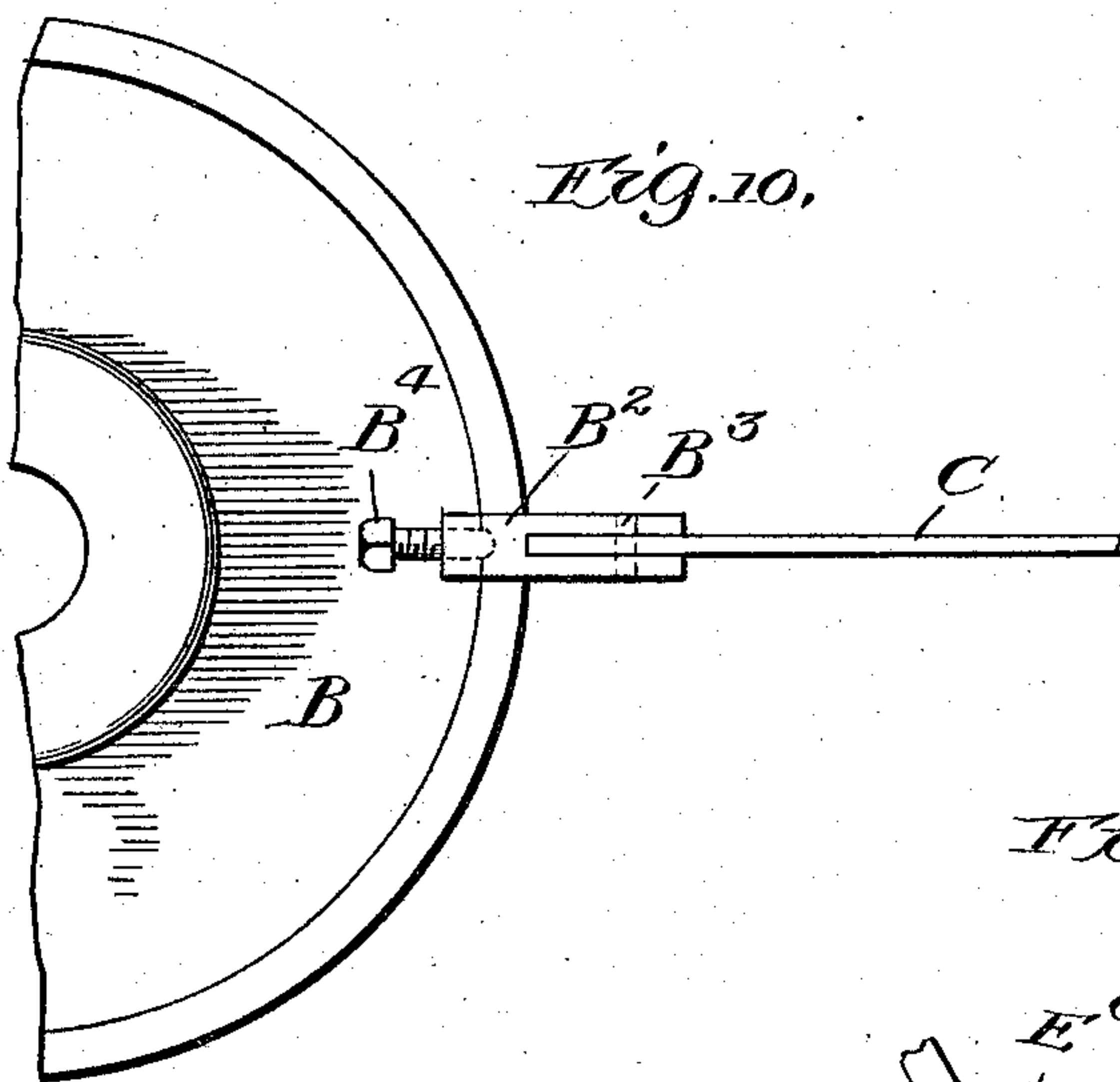
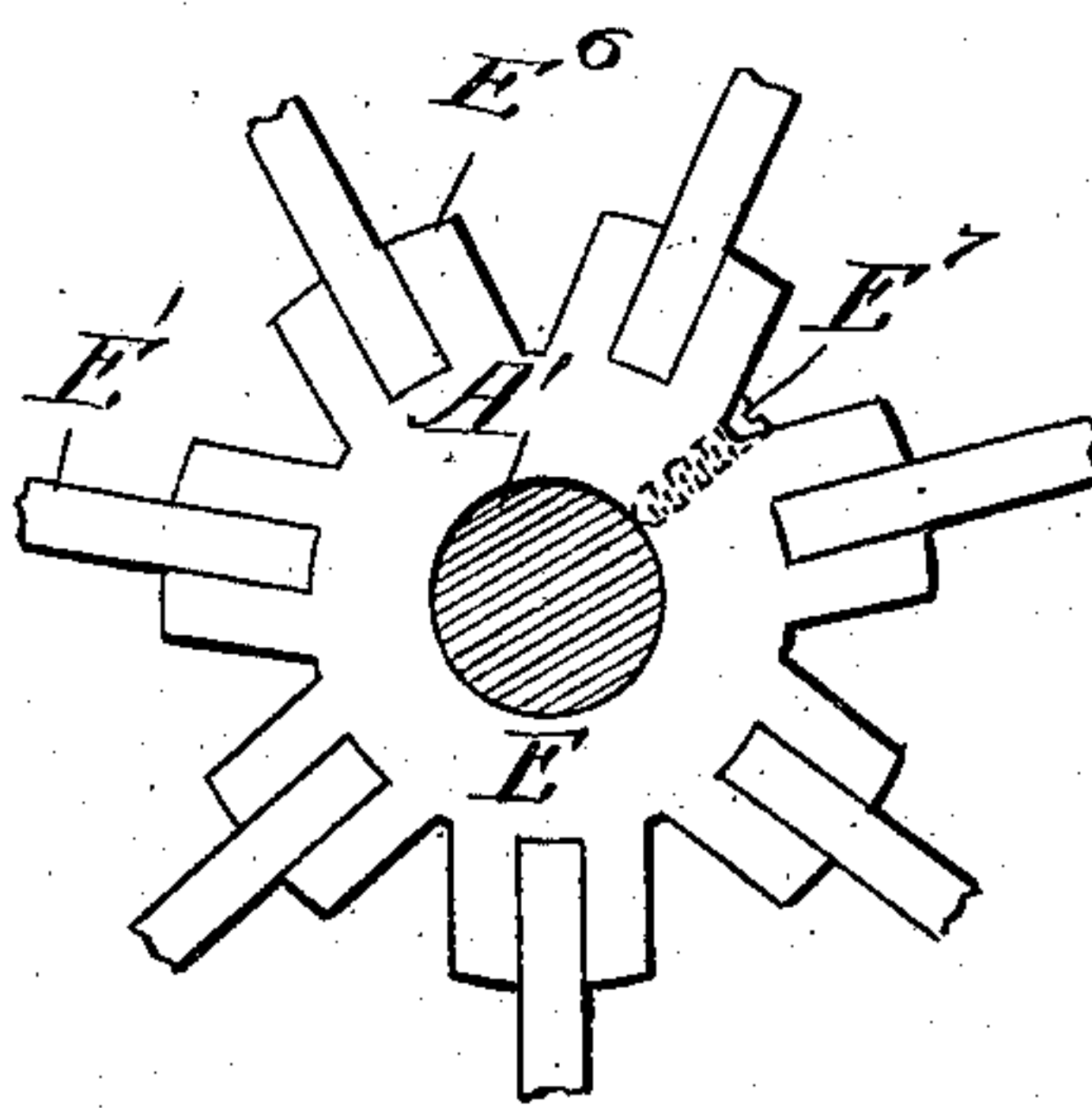


Fig. 12.



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UNITED STATES PATENT OFFICE.

JULIUS NATTENHEIMER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO E. EIGER & BROS., OF CHICAGO, ILLINOIS, A COPARTNERSHIP.

HAT-FRAME-FORMING DEVICE.

No. 881,257.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed April 30, 1906. Serial No. 314,366.

To all whom it may concern:

Be it known that I, JULIUS NATTENHEIMER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Hat-Frame-Forming Devices, of which the following is a specification.

My invention relates to hat frame forming devices and has for its object improvement in such devices.

In the accompanying drawings, Figure 1 is a sectional elevation; Fig. 2 is a plan; Fig. 3 is a detail of the ordinary clamping joint; Fig. 4 is a detail of a clamping joint used in part of the device for permitting one or more of the hook supporting standards to be moved from and returned to a definite position; Fig. 5 is a face view of Fig. 4 with nut and washer removed; Fig. 6 is a section on line 6—6 of Fig. 5; Fig. 7 is an elevation of the removable cap used in making high crowned hats; Fig. 8 is a plan of the same; Fig. 9 is a partial enlarged section of the lower cup or collar and its connected parts. Fig. 10 is a plan of the same; Fig. 11 is a perspective view of one of the bolts used; and Fig. 12 is a plan of one of the upper collars.

In said drawings, A is a base furnishing a socket for supporting the central standard A' which carries the different parts of the device and which freely rotates in its base. A convenient means for permitting such rotation is to secure to the lower end of the rod or standard A' a collar A² provided with a circular groove A³ which is engaged by a screw A⁴ in the base A. The groove and screw permit the collar and its standard to rotate, while at the same time preventing the collar and standard from being withdrawn from the base until released.

Mounted on the rod or standard A' is a cup-shaped collar or support B which may be secured at any desired position by means of a set screw B'. On the collar B are secured by set screws B⁴ a series of brackets B² to each of which is pivoted at B³ an arm C having a slot C'. Secured to each arm C is a secondary arm or bracket C² which projects inward and has a depending portion C³ adapted to be engaged by a cup D vertically slidable on the standard A'. These parts are so arranged that when the cup D is clear of the downwardly projecting parts C³, the arms C may be lifted from their normally horizon-

tal position by causing them to turn on their pivots, but when the cup D engages the projections C³ all of the arms C are held in their horizontal position. Also, on the standard A' are two other collars or supports E having lugs E⁶ to which are pivoted the slotted arms or levers E'. These supports are likewise held to the standard A' by suitable set screws E⁷ (Fig. 12) so that each may be independently adjustable on said standard. The arms E' have depending portions E² which are engaged by the cups D' and D² in the same way that the cup D engages the depending portions C³. Secured to the arms E', by screw E³ passing through the slots in said arms, are other arms E⁴ provided with notches E⁵ in their ends. The notches E⁵ are a little larger in their inner portions than they are at their openings, the object being to decrease the liability of a wire slipping out of a notch after once being placed therein.

It will be apparent from the construction shown that the screws E³ and the slots in the arms E' permit of a wide range of adjustment of the arms E⁴, and consequently of their notches E⁵. It will be also apparent that when the cups D' and D² engage their respective projections E² the arms E' and E⁴ are held so as to keep the notches E⁵ at a fixed position, but that when the cups are moved downward so as to clear the projections E² the arms may be moved on the pivoting connection with the collars E.

Slotted hook-supporting standards F are secured to the arms C by bolts C⁹ which pass through the slots C' and F'. Nuts C⁸ or C⁸⁰ and suitable washers serve to clamp C and F together at any desired adjustment. To prevent the bolts C⁹ from turning when the nut C⁸ or C⁸⁰ is screwed up, a part of the inner face of the bolt head is cut away so that the central part projects into the slot in C as shown in Fig. 3. On part of the arms C, three or more of them, the connection between C and F is made as shown in Figs. 4, 5 and 6. In this case a washer C⁴ is inserted between C and F, which washer has a short tongue C⁵ and which has beveled sides engaging the inner faces of the slot E'. A second washer C⁶ and a spring C⁷ are then interposed between the standard F and the nut C⁸. As thus made the tension of the spring C⁷ acts to hold the standard F at any angular adjustment in relationship to the arm C. But the bevel on the side of the tongue C⁵ and the

compressibility of the spring C^7 permit the standard F to be turned on the bolt C^9 as a pivot. The washer C^4 is prevented from turning either by reason of a large diameter which makes its frictional contact with the arm C at a long radius from the pivot or by reason of any other suitable construction. As a consequence of this, after the standard F has been moved by hand from its adjustment it may be readily returned to its original position without the necessity of going through the process of adjusting the position of the standard F each time that it is desirable to move it. The object of this will appear later.

Mounted on each of the standards F are a group of slotted bars G provided with hooks G' on one end. These bars are held at any desired adjustments by bolts C^9 and nuts C^8 in the same manner as explained for the ordinary connection between arms C and standards F . Knurled-thumb nuts C^{80} are shown for the connections between C and F , and common hex-nuts C^8 for the connections between F and G , but this difference is immaterial and either may be used at all places.

Secured at a convenient place on the standard A' is a bracket H to which is pivoted a lever H' . Connected to the inner end of the lever H' is a rod H^2 which is parallel with the standard A' and passes up through the cups D , D' and D^2 . Set screws H^3 serve to connect these cups to the rod H^2 , and also serve to permit each cup to be independently adjustable to correspond to the adjustment given to the supports B and E . In the normal position of the arms C and E' the projections C^3 and E^2 are in condition to be locked by engagement with their respective locking-cups D , D' and D^2 . It will be apparent that by connecting these cups to the rod H^2 a simple movement of the lever H' by hand will serve to lock or unlock all of these arms. It will also be apparent that by loosening the set screw H^3 in the cup D , the cup may be freed from connection with the lever H' and may be operated independently by hand. An adjustable set collar J is located on the standard A' so that the cup B and connected parts may be lowered from and restored to a desired adjustment without requiring a new adjustment each time such lowering takes place. In using the device it is sometimes desirable to adjust part of the hooks G' so that they are higher than the notches E^5 , and are also nearer to the center than are those notches.

The process of forming hat-frames by winding wire so as to be held by a series of notches and hooks is well known in the art and need not be described here. During the forming process the cups D , D' and D^2 are in their locking position so that the hooks and notches will be firmly held at their desired adjustment, but when the completed hat-

frame is to be removed the arms C and E' are unlocked so that the hooks and notches may freely move inward to facilitate such removal. This inward movement is made possible by normally moving the arms C and E' on their respective pivots. In the forming process the collar B and the parts connected thereto are usually lowered so that wire may be placed readily in the notches E^5 . The outer parts are then restored to their desired adjustment against the collar J and the remainder of the hat-frame formed by placing wire in the notches G' . This lowering of the outer parts may be accomplished by releasing the set screw B' , and also by releasing the set screw H^3 in the cup D so that that cup may be free from the rod H^2 to permit said lowering. That the inwardly projecting hooks G' may clear the ends of the arms E^4 , the joint connection between C and F is made as shown in Figs. 4 to 6 and as previously described. This permits this particular inwardly adjusted group of hooks G' to be swung outward, the frame work supporting all of the hooks G' to be lowered, and then the shifted group of hooks to be again returned to desired position without further adjustment. Usually not more than two or three of the standards F require such shifting of position, but in case it is wanted on more of them, the joint shown in Figs. 4 to 6, or any similar joint, may be placed on more or even all of the arms C .

In the hat-frame machine as thus described, it will be seen that the wire-holding members G' and E^4 , are divided into three sets or groups according as they are supported on one or the other of the supports B or E . Also that each set is vertically adjustable on the standard A' and independently of the adjustment of any of the other sets. And further, that the locking cups D , D' and D^2 are adjustable on the rod H^2 so that they may correspond in position with supporting devices on the standard A' , or they may be released from that rod and be manually operated independently of each other.

In Figs. 7 and 8 is shown a removable cap block (shown in dotted lines of Fig. 1) which is used in making hats with high or dome-shaped crowns. This block is simply a circular dome-shaped piece M which is centrally held on the top of the device either by a socket M' arranged to engage the top of the standard A' , or by any other convenient means. Running over the dome of the block M are a series of wire grooves M^2 which correspond in number and arrangement to the arms E^4 .

Having thus described my invention, what I claim as new and desire covered by Letters Patent is:

1. In a hat-frame forming device, a central standard, a plurality of collars secured at different elevations on said standard, a series

of independently movable arms pivoted to each collar, and a separate locking device for the arms of each collar.

2. In a hat-frame forming device, a central standard, a plurality of independently adjustable arm-holding devices secured at different elevations on said standard, a series of arms pivoted to each such holding device, and a separate locking device for each series of arms.

3. In a hat-frame machine, a central standard, a plurality of series of pivoted arms carried by said standard, a separate locking device for each series of arms, and connections between said locking devices whereby they may be simultaneously operated.

4. In a hat-frame machine, a central standard, a plurality of series of pivoted arms carried by said standard, means whereby said series of arms may be independently adjusted, a locking device for each series also independently adjustable, and connections by which said locking devices may be simultaneously operated.

5. In a hat-frame machine, a central standard, a plurality of sets of pivoted arms supported at different elevations on said standard, means by which the support for each set is independently adjustable on said standard, a separate locking device for each set of arms, a pivoted lever, and a rod extending from said lever to said locking devices whereby said locking devices may be simultaneously operated.

6. In a hat frame machine, the combination with a central standard, and members for holding wire during the hat forming process, a division of said members into sets, a further division of one of said sets into groups, means by which any set may be adjusted in position independently of the other sets, and further means by which any group may be adjusted independently of the other groups and the other sets.

7. In a hat-frame machine, the combination with a central standard, and wire-holding members, of a plurality of devices mounted upon said standard one above another and each arranged to support a plurality of said wire-holding members, and means by which said supporting devices are independently adjustable in a vertical direction on said central standard.

8. In a hat-frame machine, the combina-

tion with a central standard, of an adjustable supporting device mounted upon said standard, a series of radial arms pivoted to the supporting device, wire-holding members adjustably supported on said arms, and other wire holding members independently supported from said standard and normally located at a less radius than the before mentioned members.

9. In a hat-frame machine, the combination with a wire-holding hook, and means by which it may be secured at any desired adjustment, of spring actuated means by which said hook may be moved from and returned to its adjustment independently of other hooks carried by said machine.

10. In a hat-frame machine, the combination with a series of groups of wire-holding hooks, and means by which they may be secured at any desired adjustment with respect to each other, of spring actuated means for permitting a desired group of said hooks to be independently moved from and returned to their normal adjustment with respect to the other groups.

11. In a hat-frame machine, a series of wire-holding members located about a center, a second series of wire-holding members surrounding the first series, a division of the second series of wire-holding members into groups, means by which each group may be shifted from its normal adjustment and upon being returned will automatically be stopped and held at its previous adjustment, and means by which the groups may be collectively lowered from and returned to a previous position independently of the inner series of members.

12. In a hat-frame machine, a series of wire-holding members located about a center, a second series of wire-holding members surrounding the first series, and means by which the outer series may be lowered from and returned to an adjusted position independent of the inner series so as to facilitate the placing of wire on said inner series.

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

JULIUS NATTENHEIMER.

Witnesses:

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J. PINES.