

H. SILBERT & S. WACHTEL.
MACHINE FOR MAKING HAT FRAMES.
APPLICATION FILED APR. 14, 1910.

972,407.

Patented Oct. 11, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

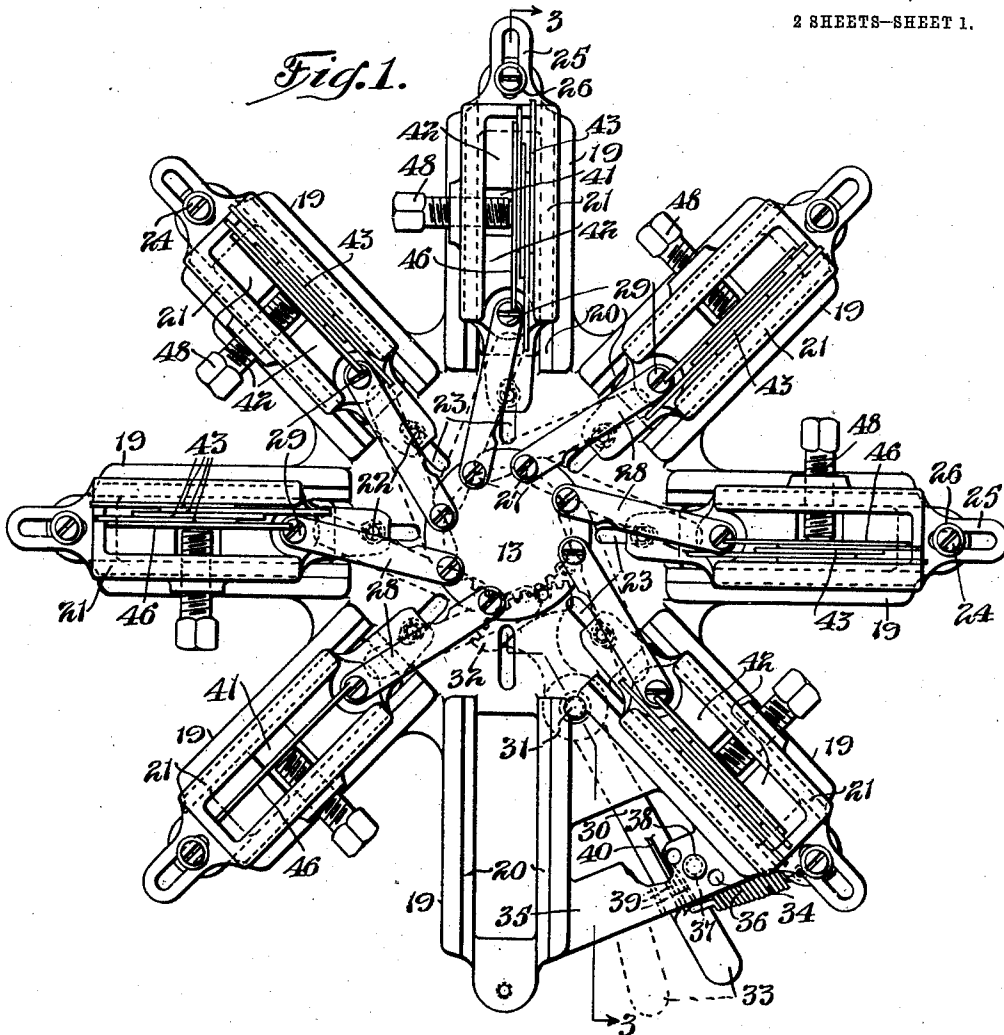
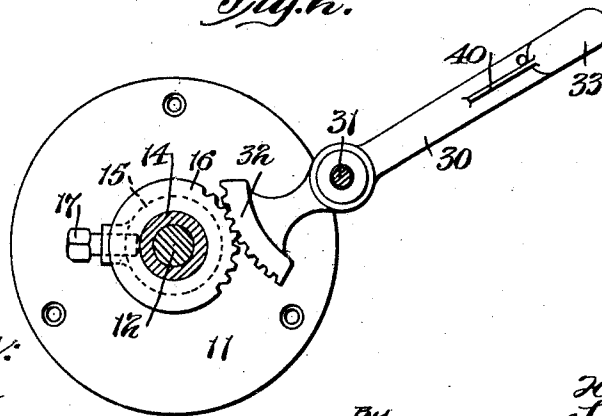


Fig. 2.



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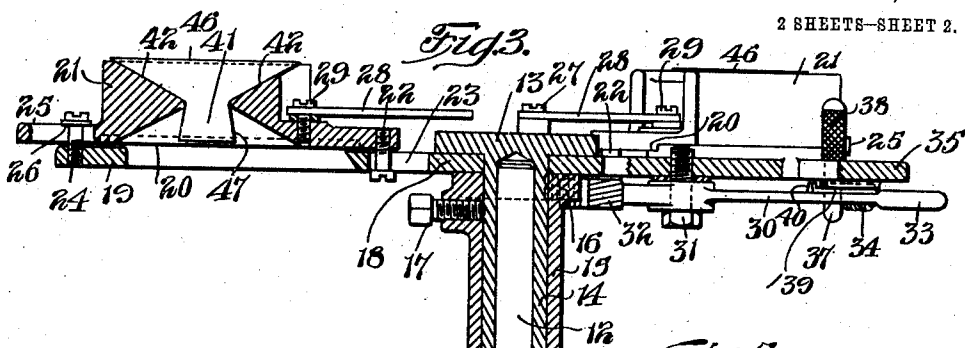


Fig. 4.

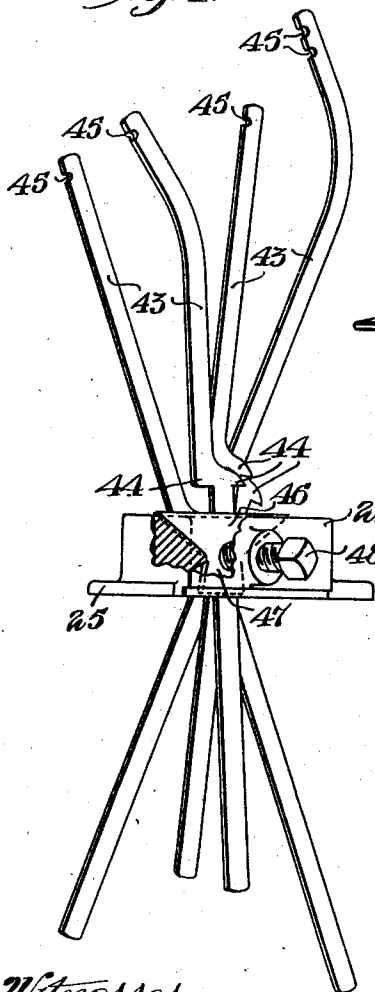


Fig. 5.

Fig. 8.

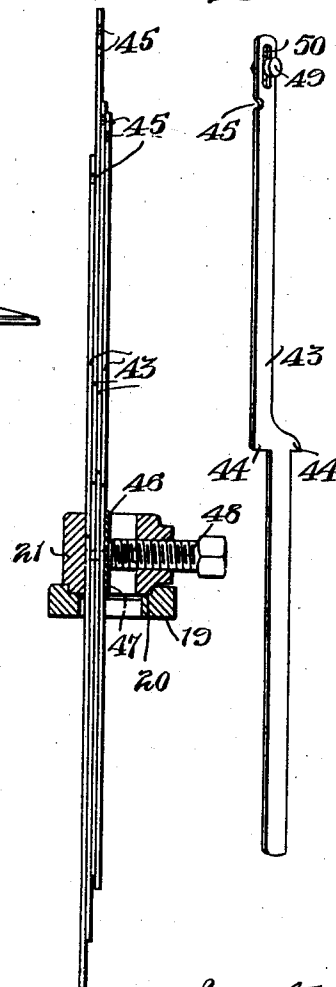


Fig. 6.

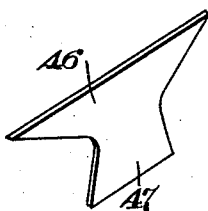
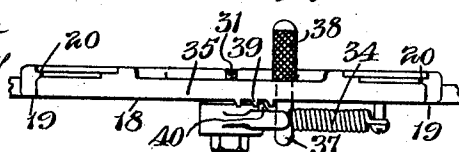


Fig. 7.



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UNITED STATES PATENT OFFICE.

HARRY SILBERT AND SIDNEY WACHTEL, OF BOSTON, MASSACHUSETTS.

MACHINE FOR MAKING HAT-FRAMES.

972,407.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed April 14, 1910. Serial No. 555,478.

To all whom it may concern:

Be it known that we, HARRY SILBERT and SIDNEY WACHTEL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Hat-Frames, of which the following is a specification.

This invention relates to machines for making wire frames for ladies' hats and refers particularly to that type of such machines which employ a circular series of groups of adjustable pattern-forming rods or arms around which the operator wraps or winds the wire, a machine of this general type forming the subject-matter of an application, Serial No. 527,840, filed November 13, 1909 by Harry Silbert. In the machine forming the subject-matter of said application, some of the boxes in which the rods or arms are clamped, are tilted upward so that the upper ends of the arms carried by those boxes swing inward. This upward movement, occurring at the same time as the inward movement in order to enable the completed hat frame to be removed, is liable to cause a disarrangement and twisting of the wires, and moreover does not free the frames as quickly as desirable.

One of the objects of the present invention is to provide improved means for collapsing the series of frame wire supporting-arms to enable the completed frame to be removed.

Another object is to provide a machine of this type having means whereby the arms can be quickly adjusted for making different sizes of hats, without altering their positions in their clamping-boxes.

Another object is to provide improved means for preventing the wire supporting-arms from dropping out from the clamps.

Further objects are to provide improved details of construction tending to facilitate the operation of making the hat frames, all as will be more fully hereinafter pointed out.

To these ends the invention consists in the construction and combination of parts substantially as hereinafter described and pointed out in the claims.

Of the accompanying drawings,—Figure 1 is a plan view of a machine embodying our invention. Fig. 2 is a detail horizontal section on the line 2—2 of Fig. 3. Fig. 3 represents a section on line 3—3 of Fig. 1. Fig. 4 is a perspective view of one of the clamp

boxes and the set of wire supporting-arms. Fig. 5 is a detail edge view of the arms shown in Fig. 4, the clamping box being shown in section. Fig. 6 is a perspective view of one of the clamp-plates. Fig. 7 is a detail view illustrating the means for limiting the movement of, and locking the lever which is employed to shift the entire series of clamp boxes. Fig. 8 is a perspective view of a wire supporting-arm which may be used in addition to those shown in Fig. 4, or as a substitute for one of said arms.

Similar reference characters indicate the same or similar parts in all of the views.

A standard 10, having a base or footpiece 11 which may be provided with screw-holes to enable it to be secured to the work table or other support, is provided with a spindle 12 on which the entire mechanism is adapted to rotate freely to enable the operator to turn it around as the hat frame is being made. A disk 13, which will be hereinafter referred to as the crank-disk, has a sleeve 14 fitting the spindle 12. Surrounding the sleeve 14 is an outer sleeve 15 having its upper end slightly enlarged and provided with teeth 16. By means of suitable means such as a set screw 17 the sleeve 15 is secured firmly to the sleeve 14 so that said two sleeves will rotate in unison, the screw 17 however enabling the parts to be secured together in their proper relative positions when assembled.

Mounted loosely on the sleeve 14, and between the disk 13 and the enlarged upper end of the sleeve 15, is a table 18 having arms 19, said table being so mounted that it can be turned about the axis of the sleeve 14 for a purpose hereinafter described. Each arm 19 is formed with slide-ways 20 for a frame or box 21. The frames or boxes will be hereinafter chiefly referred to as the clamp-boxes. The inner end of each box 21 is guided by a screw 22, which screw may move back and forth in a slot 23 formed in the table 18. An outer screw 24 secured in the outer end of each arm 19 extends through a slot 25 in an ear which projects outwardly from the clamp box. Preferably washers 26 are employed below the heads of the screws 24.

The disk 13 is provided with as many pins 27 as there are clamp boxes, and since said pins act as cranks they will be referred to as crank-pins. Each crank-pin 27 is connected by a link 28 with a pivot 29 attached

to a clamp box, the construction being such that when the disk 13 is partially rotated relatively to the table 18 the links 28 cause the clamp boxes to shift radially for a purpose presently described.

A lever 30 is pivotally mounted at 31 underneath the table and at its inner end is formed as a toothed segment 32, meshing with the teeth 16 of the sleeve 15, which, as has been stated, is secured to the sleeve 14. The outer end of the lever is formed as a handle 33 and is connected by a spring 34 to one of the arms 19, this spring having a tension tending to normally hold the lever 30 in the position shown in full lines in Fig. 1. When the lever is in said full line position, the disk 13 is in such a position that the links are all in their full line positions, thus holding all of the clamp boxes in their outermost positions. But when the lever 30 is shifted to the dotted line position indicated in Fig. 1 the disk 13 is slightly rotated so that its crank-pins shift the links to the dotted line positions and draw the clamp boxes toward the center of the table so that the hat-form presented by the arms that are clamped in the clamp boxes is collapsed to enable the completed hat frame to be removed. As best shown by comparing Figs. 1 and 7, the lever 30 extends under a web-plate 35, which plate is formed with a series of holes 36 in either one of which a stop-pin 37 having a handle 38 may be set so as to limit the position which the lever 30 may occupy when released by the operator and swung over by the spring 34.

The act of making the hat frames which consists in wrapping the wires around the hooks of the arms hereinafter described causes such a concentric pressure as might act through the links and crank pins to accidentally collapse the form. To prevent this we provide means for locking the lever 30 when in the full line position of Fig. 1. Said locking means may consist of a rib-tooth 40 on the upper side of the lever 30 and adapted to engage either one of the catch-teeth 39 formed on the underside of the web-plate 35. When so constructed the operator can release the lever and shift it over to the dotted line position indicated in Fig. 1 by pressing the handle 33 downward, the lever being sufficiently resilient to permit this to be done, and then swinging the lever as described. Of course, since the entire table is freely rotatable the operator usually finds it necessary to place a thumb over the outward end of the box which is at the left of the handle 33, one or two fingers of the same hand grasping said handle 33. This leaves the other hand of the operator free to lift the completed hat frame off from the form. To enable this to be done, it is of course, essential that the lever shall be located where it is accessible for operation

by one hand and without interfering with the completed hat frame.

We will now proceed to describe the construction of the clamp-boxes and the form-composing arms.

Each box 21 is formed with a contracted throat 41, the upper surface being preferably inclined upwardly and outwardly from said throat. The flat arms 43 are so formed as to provide two lugs or shoulders 44 which extend outwardly sufficiently to prevent the arms from dropping through the throat when they are not clamped in the boxes. But of course the portions of the arms below said shoulders 44 are sufficiently narrower than the throat 41 to enable the arms to be variously adjusted at different angles as indicated to some degree in Fig. 4. Each arm is provided with one or more notches or hooks 45. Usually the arm 43 which constitutes the inner and higher one of the group has two notches 45, one above the other, these two notches taking the wires which form the "head size" of the hat frame in the more expensive types of hat frames. If cheaper hat frames are being made having but one "head size" wire only one of the notches or hooks 45 of the inner arms of the different groups need be utilized. Bearing against one side of the different arms of each group is a clamping-plate 46 having upper side portions which are adapted to rest upon the inclined surfaces 42 of the boxes, said plates being formed with lower portions 47 which are slightly wider at their lower ends than at those portions which fit in the throats of the boxes. These widened or lower portions of the plates 46 prevent the plates from becoming accidentally dislodged from the boxes when the clamping screws are loosened and when the form-bars 43 are being adjusted. Of course when the plates are being put in position in the boxes and there being then no arms 43 in place, the said plates 46 can be slightly turned to enable their wider lower edges 47 to pass through the throats. But when the plates are then turned to clamping position, which is of course parallel with the longer sides of the boxes, said plates cannot become accidentally dislodged. One side of each clamping box has a screw 48 passed through it and adapted to bear against a plate 46 so that the arms 43 will be clamped between said plate and the other side of the box in a manner similar to the machine illustrated in the Silbert application hereinbefore referred to.

In Fig. 8 is shown an arm which instead of having two notches 45 has but one such notch. Above the notch the arm is provided with a pin 49 which may be adjustably set along a slot 50 so as to vary the distance of the pin 49 from the notch 45. The bar 43 shown in Fig. 8 is to be used when the cheaper type of hat frames are being made

having but one "head size" wire. In such hat frames the one "head size" wire would be led around the notches 45 of the various arms of the different groups or series, while the radiating wires or those which extend across the center and out to the brim are carried over the pins 49 and then bent downward and carried under the "head size" wire in the notch 45. This is so that the said radiating wires will be at the necessary height above the plane of the one "head size" wire. To permit of this operation it is essential that each pin 49 shall be in a higher plane than the notch 45. And it is also essential that the pin shall be so secured that it can not swing around and release the wire which is led over it. The fact that the pins pass through slots in the arms insure their retention in proper laterally projecting positions relatively to the notches 45.

It will now be understood that the members 21, 46 and 48, as a whole, constitute a clamp for a series of wire supporting-arms, and that there will be as many of these clamps as may be required in the circular series, there being eight such clamps shown in Fig. 1. The entire set of clamps as a whole and their arms constitute an adjustable form for the wires of the hat frames which are to be made. And of course when the proper positions for the various arms 43 of each group have been once obtained and secured, the pattern or form so produced can be used repeatedly for a given size, and when another predetermined size of the same style is wanted, it is only necessary to change the location of the stop-pin 37, which location can only be that determined by one of the holes 36; and said holes are positioned to insure the correct variations of size.

While the series of clamps may be referred to as "circular", and is so referred to herein and in the claims, it is to be understood that this term is employed for purposes of brevity in description and not of limitation. The term is not to be understood as limiting us to arranging the clamps in a perfect circle, because although most hat frames are circular yet it would be no departure from our invention to have the clamp frames arranged in more or less of an oval or ovoid. Of course, by changing the outward inclination of the arms of some groups relatively to the arms of other groups the construction as illustrated may be used for making hat frames which are not exactly circular.

In operation, a set of arms 43 will be suitably secured in each clamping box, the upper ends of said arms being spread and arranged at such height that the entire series of clamped sets of arms will constitute the form which determines the shape which the hat frame will have. The wrapping of the wires around the arms 43, said wires being

engaged with the hooks 45, and the connecting of the usual radial wires will all be performed while the boxes are in their outermost positions. When a frame is completed, all that the worker needs to do is to shift the lever 30 from the position indicated in full lines in Fig. 1 to the position indicated by dotted lines in said figure, retaining hold of said lever with one hand and removing the finished hat frame with the other hand. Upon releasing the said lever, the spring 34 pulls the lever back to normal position and expands the sets of arms to their outermost positions, ready for the making of another hat frame.

The variation of sizes effected by the position of the stop-pin 37 has the special advantage of enabling a set of hat frames to be made all of which will be exactly alike in shape, but of sufficiently differing sizes to enable the set to be nested for shipment or storage.

Having now described our invention, we claim:—

1. A machine for making hat frames, comprising an adjustable form for the wires of the frame, said form consisting of a circular series of groups of independently adjustable wire supporting-arms, and means for moving said groups horizontally toward and from the center of the series, said means including a lever extending beyond the circle presented by said series of groups of arms.

2. A machine for making hat frames, comprising an adjustable form for the wires of the frame, said form consisting of a circular series of clamps, wire supporting-arms adapted to be adjustably secured in said clamps, means for horizontally moving the clamps to collapse the series, and means for automatically returning the clamps to normal position.

3. A machine for making hat frames, comprising an adjustable form for the wires of the frame, said form consisting of a circular series of clamps, wire supporting-arms adapted to be adjustably secured in said clamps, and means for horizontally moving the clamps to collapse the series, means being provided for adjustably limiting the outer positions of the clamps to either one of a plurality of locations for changing the size of the hat frame to be made.

4. A machine for making hat frames, comprising a table having a series of radially mounted clamp boxes, a crank-disk, links connecting said disk with the boxes, wire supporting-arms adjustably secured in said clamp boxes, and means for varying the relative rotative positions of the table and crank disk, said means including a lever extending between the arms of two of said boxes.

5. A machine for making hat frames, comprising a table having a series of radially mounted clamp boxes, a crank disk, links connecting said disk with the boxes, wire supporting-arms adjustably secured in said clamp boxes, and means for varying the relative rotative positions of the table and crank disk, said means comprising a lever pivotally connected to the table and having teeth at its inner end, and a toothed rack connected to move with said disk.

6. A machine for making hat frames, comprising a table having radially adjustable clamp boxes, a crank disk, link connections between said crank disk and boxes, a lever, and means whereby the shifting of the lever will change the relative rotative positions of the table and disk, and a spring normally holding the lever at one extreme of its position.

7. A machine for making hat frames, comprising a table having radially adjustable clamp boxes, a crank disk, link connections between said crank disk and boxes, a lever, and means whereby the shifting of the lever will change the relative rotative positions of the table and disk, and a spring normally holding the lever at one extreme of its position, an adjustable stop-pin being provided for said lever.

8. A machine for making hat frames, comprising a table having radially adjustable clamp boxes, a crank disk, link connections between said crank disk and boxes, a lever, and means whereby the shifting of the lever will change the relative rotative positions of the table and disk, and means for locking the lever in one of its adjusted positions.

9. A machine for making hat frames, comprising a table having radially adjustable clamp boxes, a crank disk, link connections between said crank disk and boxes, a lever, and means whereby the shifting of the lever

will change the relative rotative positions of the table and disk, a spring normally tending to hold said lever in position to retain the boxes in their outermost positions, and means for locking the lever in that position.

10. A machine for making hat frames, comprising an adjustable form for the wires of the frame, said form consisting of a series of clamp boxes having openings and clamp-plates, wire supporting-arms having lugs to prevent them from dropping through the openings of the boxes, and screws for pressing said plates against the wire supporting-arms to clamp them against the other sides of the boxes.

11. A machine for making hat frames, comprising an adjustable form for the wires of the frame, said form consisting of a series of clamp boxes having openings and clamp-plates, wire supporting-arms having lugs to prevent them from dropping through the openings of the boxes, and screws for pressing said plates against the wire supporting-arms to clamp them against the other sides of the boxes, said plates having widened portions below the openings of the boxes to prevent dislodgment of the plates.

12. A machine for making hat frames, comprising an adjustable form for the wires of the frame, said form consisting of a series of groups of independently adjustable wire supporting-arms, one of the arms of each group having a hook or recess and also having a slot above said recess, and a laterally projecting pin having means for adjustably securing it longitudinally of said slot.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

HARRY SILBERT.
SIDNEY WACHTEL.

Witnesses:

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P. W. PEZZETTI.