P. L. SLAYTON.

LOOM FOR WEAVING HATS, &c.

No. 45,208. Patented Nov. 22, 1864.

Fig. 3.

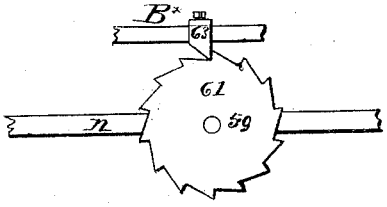


Fig. 4.

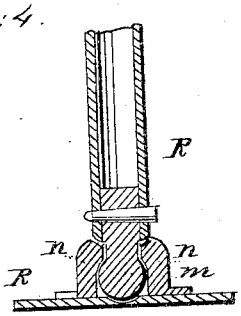


Fig. 1.

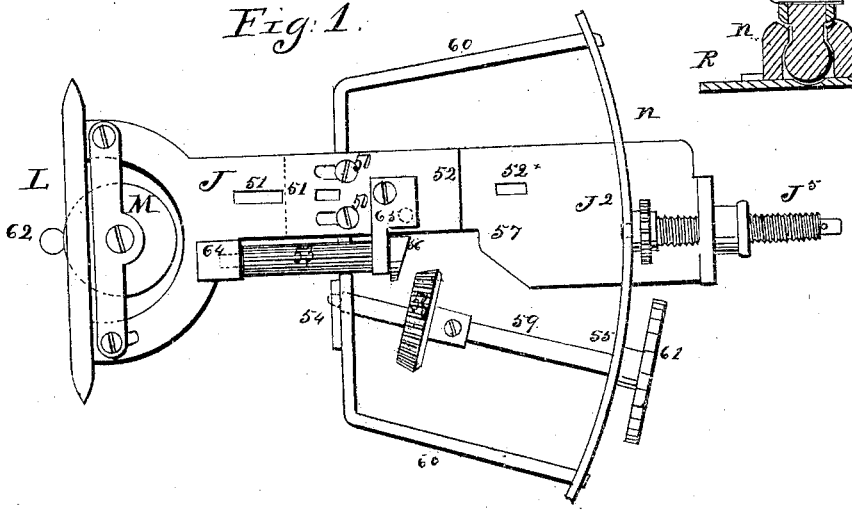
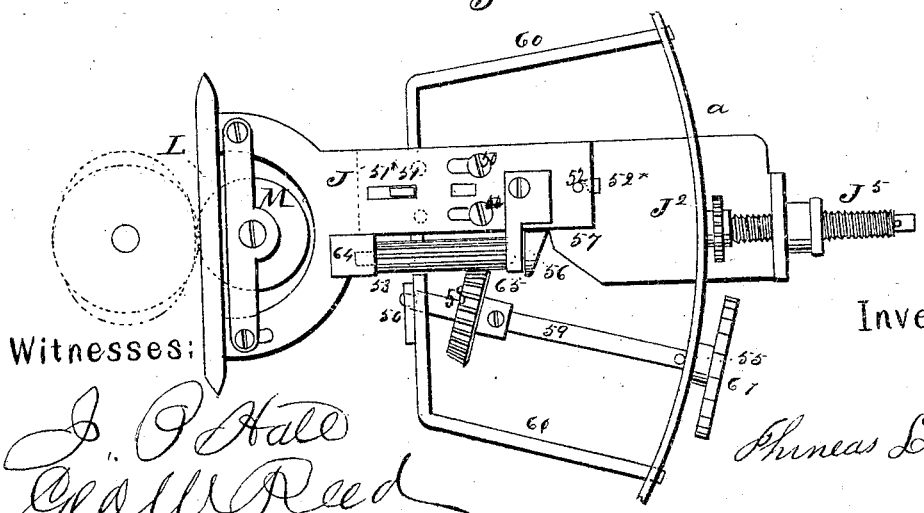


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN LOOMS FOR WEAVING HATS, &c.

Specification forming part of Letters Patent No. **45,208**, dated November 22, 1864.

To all whom it may concern:

Be it known that I, PHINEAS L. SLAYTON, of the city, county, and State of New York, have invented certain new and useful Improvements in Circular Looms for Weaving Hats and other Articles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention is designed more especially for application in connection with the improvements in circular looms which constitute the subject-matter of Letters Patent No. 41,466, but might be applied to other circular looms.

Its object is, first, to provide for the weaving of the brim of the hat of an elliptical or elongated form approximating to that of the human head, or to weave any other article in elliptical form; and to this end it consists in giving the pressing-up devices which are used to press the weft into its place in weaving the top of the crown and brim a movement toward and from the center of the loom twice in every revolution of the revolving parts of the loom while the weaving of the brim is being performed, each movement toward and each movement from the center occupying the same time as one-quarter revolution.

The invention consists, secondly, in making the connection between the upper clamping or pressure plate, which is used to press upon the inside of the top of the crown of the hat while the weaving of the side is being proceeded with, and the central sleeve, to which the said plate is attached by means of a universal joint or its equivalent, so that the said plate will operate with a yielding pressure opposite that point in its circumference where the weaving is being performed, by which means a better operation is produced and the liability to break the warp-strands is obviated.

Figures 1 and 2 in the accompanying drawings are top views of a sufficient portion of the loom to illustrate the first part of my invention. Fig. 3 is a side view of some of the parts. Fig. 4 is a central vertical section of the upper clamping or pressing plate and of part of the central sleeve to which it is attached, showing the ball-and-socket connection.

Similar letters and numbers of reference indicate corresponding parts in the several figures.

The parts not represented in the drawings or herein particularly described may be supposed to be the same as described in Letters Patent No. 41,466.

J^2 is what is called the "shuttle-carrier," and J′ is the forked yoke secured thereto and carrying the straight presser L and the pressing-roller M.

In Fig. 1 the parts are represented in the proper positions for weaving the top crown of the hat in circular form. The yoke J′ is secured firmly to the shuttle-carrier J^2 by means of two screws, 50, which pass through slots in the yoke and screwed into tapped holes in the carrier, and is prevented from moving thereon by means of a projection, 51, on the carrier entering a corresponding hole in the yoke, and a projection, 52, on the yoke entering a corresponding hole in the carrier. The small circle 62 in this figure represents the filling line, the weaving not yet having proceeded far from the center of the top of the crown.

In Fig. 2 the yoke is represented in condition for weaving the brim of the hat in elliptical form. The yoke is placed farther back on the shuttle-carrier and the screws 50 50 screwed into two holes farther back on the shuttle-carrier, and the projections 51 and 52 are inserted into slots 51* and 52* in the yoke and shuttle-carrier, the length of the said slots and of the screw-holes in the yoke being sufficient to permit the necessary movement of the yoke back and forth a distance equal to the difference between the greatest and least diameter of the ellipses in which the brim is woven. The red circle in this figure represents the outline of the top of the crown, and the ellipse shown in blue color shows the elliptical form of the commencement of the brim, the lower edge of the side of the crown being held in this shape by making the "former" described in Letters Patent No. 41,466 elliptical instead of circular, as therein described.

The yoke J′ has attached to one side of it a long pinion, 53, the journals of which are fitted to bearings, 64 65, secured to the yoke, so that the said pinion can have no move-

ment endwise independently of the yoke. The axis of this pinion is parallel with the sliding movement of the yoke. To the inner end of the said pinion there is secured a cam, 56, which bears against a shoulder, 57, provided on the carrier J^2 or against an anti-friction roller attached thereto. The pinion gears with a bevel-gear, 58, on a shaft, 59, which works in bearings 54 55 in or on a frame, 60, which is secured to the middle one of the rotating rings of the loom. A portion of this ring is shown in the drawings, marked *n*. The said shaft 59 is furnished outside of the said frame and outside of the ring *n* with a ratchet-wheel, 61, which is turned one tooth at a time by its teeth coming in contact with a number of stationary teeth, 63, (see Fig. 3,) secured to the upper stationary ring, B*, of the machine. The number of these stationary teeth is equal to twice the number of teeth in the ratchet-wheel to produce two revolutions of the said wheel and its shaft and pinion during each revolution of the ring *n* and the shuttle and devices for pressing up the filling. The cam 56, acting against the shoulder 57, causes the yoke with its attached presser L and pressing roller M and its attached end of the shuttle to approach the center of the loom once during each of its revolutions and twice during each revolution of the shuttle and pressing devices. The arrangement of the cam must be such as to produce this movement toward the center as the pressing devices revolve from the larger toward the smaller diameter of the ellipse. The return movement from the center is produced by the pressure of the work as the pressing devices revolve from the smaller toward the larger diameter. The length of the pinion must be sufficient for the gear 58 to remain in gear with it while moving out far enough to weave the widest brim. During the weaving of the top of the crown the gear 58 is not in gear with the pinion, and to enable it to be moved out of gear it is so fitted to its shaft as to be capable of being slid back thereon, as shown in Fig. 1.

The above-described movements of the weft-pressing devices toward and from the center of the loom are entirely independent of the slow outward movement which takes place as the brim increases in size in the weaving process, and which is produced by the screw J^5.

R, Fig. 4, is the upper clamping or pressing plate for pressing on the inside of the top of the crown of the hat while the sides are being woven, and R′ is the central sleeve to which it is attached. *m n* is the ball-and-socket joint by which the connection between the said plate and tube is formed, the ball part *m* being secured firmly into the sleeve and the socket part *n* to the back of the plate. It will be understood that this joint allows the plate to cant to some extent in any direction, and makes its pressure at any given point yielding. The plate thus applied may be used without the lower clamping plate described in my Letters Patent hereinbefore referred to.

I do not confine myself to the use of any particular means of producing the within-described movements of the weft-pressing devices toward and from the center of the loom during each revolution; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Giving the weft-pressing devices of a circular or rotary loom a movement toward and from the center of the loom during each of the revolutions of the loom, substantially as and for the purpose herein specified.

2. The attachment of the plate R to the sleeve or its equivalent by means of a ball-and-socket or other flexible joint of similar character, substantially as and for the purpose herein specified.

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Witnesses:

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