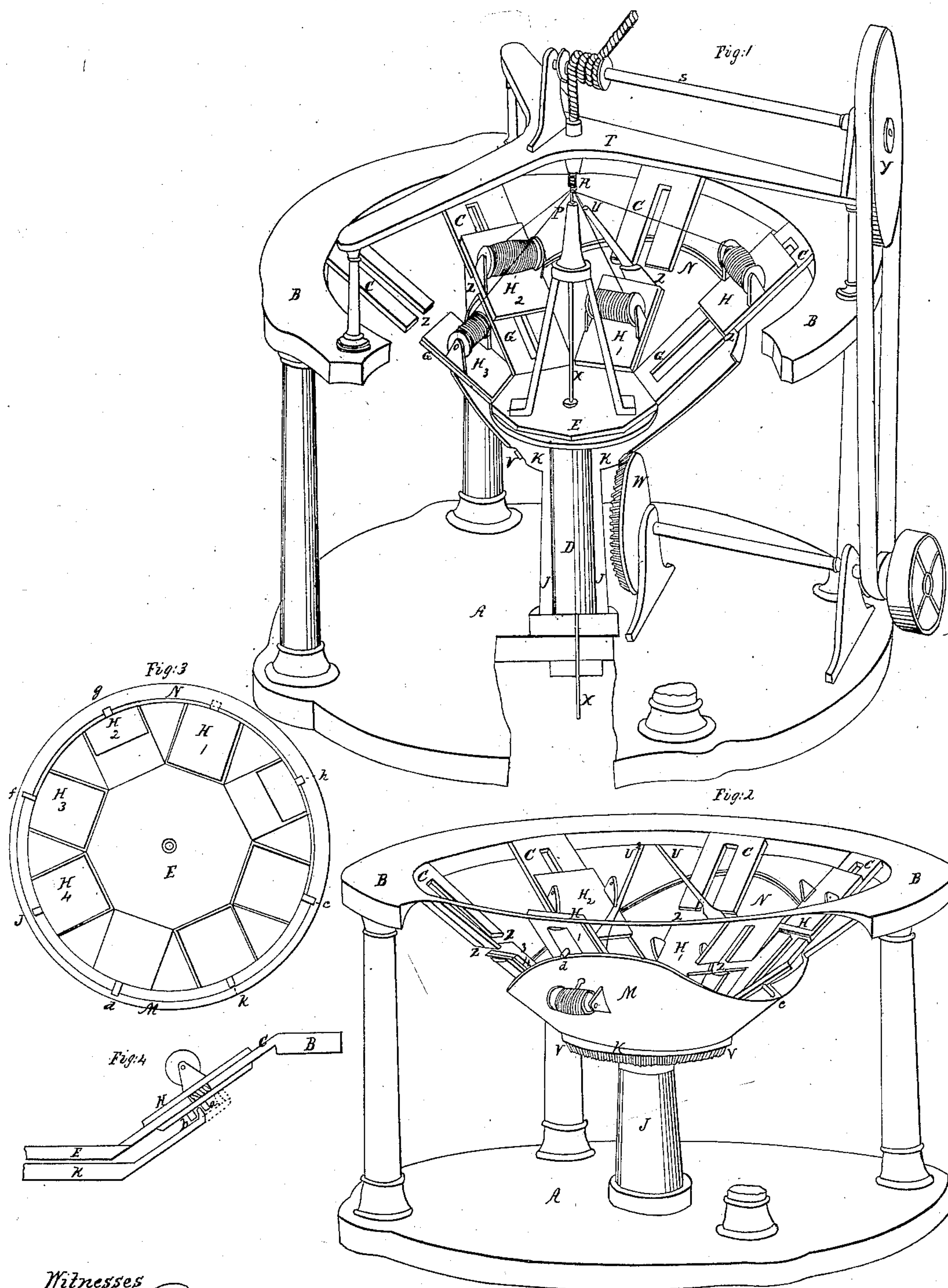


T. NELSON.
MACHINE FOR WEAVING SHADE CORD.

No. 16,248.

Patented Dec. 16, 1856.



Witnesses
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THOMAS NELSON, OF TROY, NEW YORK.

MACHINE FOR WEAVING SHADE-CORD.

Specification of Letters Patent No. 16,248, dated December 16, 1856.

To all whom it may concern:

Be it known that I, THOMAS NELSON, of Troy, Rensselaer county, State of New York, have invented a machine for the purpose of weaving a hollow web of thread, silk, or a metallic wire upon and as a covering for cord, wire, or any analogous substance to be used particularly in the manufacture of shade-cords; and I do declare the following specification, with the drawings hereto attached as part thereof, to be a full and perfect description of my invention.

Figures 1 and 2 represent perspective views of the machine with portions of its framing and machinery removed to show its interior construction and movements. Fig. 3 represents a birdseye view of the lower division of the machinery to illustrate the working of the eccentrics and cars. Fig. 4 shows a profile vertical section through one of the planes with its car and the eccentric, to aid the illustrations of the working of the same.

Similar letters in the different figures denote the same parts of the apparatus.

Upon a base A several pillars support a metal ring B B. From the inner edge of this ring depend a series of rectangular slips or planes C, C, C, C, not less than four in number, and in any even number beyond that, as six, eight, &c., according to the extent of the work to be done and number of shuttles to be employed. These planes incline at an angle of forty five degrees or thereabout to the plane of the ring itself.

From the center of the base, in the axial line of the ring, rises a firm pillar D supporting a circular plate E whose diameter is about equal to half the internal diameter of the ring B. This plate is placed so far below the plane of B that a prolongation of the planes C, C, (which planes extend not quite half way from the ring to E) would just carry them on to E, for from E project outwardly and upward and in exact range with C, C, C, C, corresponding rectangular slips G equal in size to C and consequently not quite meeting them, leaving between C and G a horizontal vacancy or pathway Z whose use will presently be stated. Upon these planes sliding blocks or spool-cars H, H, slide, being kept and guided in their places by feathers passing up and down their backs which traverse slots extending the length of the planes. Counterpieces attached to the feathers sliding

against the back of the planes keep the cars true to their work as shown in Fig. 4.

Upon H, H, are standards which carry the spools on which the warp threads are wound. In performing functions these cars traverse the two planes C, C, and G, G, so as to leave at each extreme of their course the pathway Z unobstructed.

The following apparatus accomplishes the work. The fixed pillar D is externally a true cylinder. To and around it is fitted a hollow pillar (or sleeve) J, so as to turn freely around it. It supports a circular disk K moving under the plate E, and projecting beyond its periphery. Attached to this disk K are two eccentrics, shown in Fig. 2, M and N. They are portions of the conical figure, whose base would be a circle a little larger than the inner edge of ring B, disk E forming one of its lesser cross sections and of course they lie parallel with the planes C, C, G, G. Their upper edges are eccentrics as shown in the drawing arranged to move in succession the spool cars up and down the planes. Their connection with the cars is thus effected. From the back of their counterpieces two pins project, *a* and *b*, Fig. 4, and these hold on either side of a flange which projects inwardly along the eccentric's edge and at right angles to its surface.

In order to effect the proper movements it is requisite that while one of the cars (spools) is being elevated and depressed by an eccentric, its preceding and succeeding car (spool) should remain quiescent at the bottom of these planes. This is done by placing the one eccentric N in advance that is nearer the planes than M and then placing the pins *a*, *b*, a corresponding degree higher on every other car, the pins of the planes which have them placed lowest being also the longest. The effect of this will be seen from Figs. 2 and 3 where at *c* one of the long pins will be seen emerging from under eccentric N and ready to rise upon eccentric M. At *d* another of the long pins is at the apex of M and at *f* another is at the bottom and passing under N. Short pins *g* and *h* are rising over N while *j* and *k* are passing behind M being short enough to clear the space between its flange and the planes.

The pillar D is a tube to permit the passage of the cord X or other article to be covered, and directly above the passage sup-

ported by standards upon the plate E is a nozzle P terminating at the point from which a perpendicular let fall to the plane G would touch its upper edge. Through
 5 this nozzle the cord X passes and is taken up by another nozzle R a very small distance above it and by it carried up to a horizontal roller S over which it takes a few turns and then is carried off to proper receptacles for the finished cord. The nozzle
 10 R with the roller stand upon a platform T raised upon the ring B.

Attached to the eccentric just below their apex are the woof carriers or shuttles U, U.
 15 They are rods passing up through the pathway Z (left for their circuit) and are hollow for the purpose of carrying the woof or filling from spools attached to the back of the eccentric, their upper termini are arranged to make the filling meet the warp midway between the nozzle P and R.

Motion is given to the machine by a horizontal bevel wheel V attached to plate K on shaft J which cogs into a vertical wheel W
 25 attached to a horizontal shaft at the other extremity, of which the power is applied from the same shaft by belt pulley gearing or otherwise motion is carried to a wheel Y attached to the shaft of roller S so as to
 30 regulate the taking up of the finished work in proportion to the rapidity of the weaving operation.

The operation of the machine is as follows: The cord to be covered is passed up
 35 through D, P and R to roller S and thereto attached. The ends of the threads from the spools are attached to the cord just below R and the woof threads being carried up through U are also attached below R. The
 40 machinery being as shown in the drawing, it will be seen that car 1 is down and that the shuttle will pass over its thread. On starting the machine car 2, which is already half way up rises so that the shuttle passes under
 45 it. As the shuttle passes on car 3 is and continues down the woof passing over it, but car 4 begins to rise and when the woof has

reached it has risen so that the shuttle passes under it.

By tracing the movement of the shuttle U² 50 attached to the lowest eccentric, the reverse operation takes place that is car 1 will be up, car 2 down, the result in both cases being the same, viz., the passage of the shuttle between an up and down thread in succession and so it will be for any number of
 55 shuttles added for each additional pair of warp car and spools employed.

The tightness of the weaving, or the closeness of the fabric is determined by the movement of the roller S which being properly geared in relation to the motion of the wheels V and W will take up the cord being covered, so as to make the woof pass around
 60 it in closer or looser spirals at will. 65

The number of carriers or shuttles is not limited to two but may be increased to any number required, the proper number of spool cars being employed with them.

I claim— 70

1. The arrangement of the inclined planes C C, G G around a circle, and divided from each other by the chasm or pathway Z, the same being intended as the course or track
 75 of the spool cars.

2. The arrangement of the spool cars in combination with the eccentrics M and N which operate the cars in the rear of the inclined planes, by means of pins or equivalent apparatus passing from the cars
 80 through slots in the planes.

3. The arrangement of carriers or shuttles U, U², attached to the eccentrics, passing through the chasm Z between the upper and lower planes and traversing circularly, delivering the woof or filling between the
 85 threads of the warp, as they change their relative positions by the alternate elevations and depressions of the spool cars.

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Witnesses:

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