

*F. W. Huppelsberg*  
*Take-Up Rollers.*

N<sup>o</sup> 66,844.

Patented Jul. 16, 1867.  
Fig. 1.

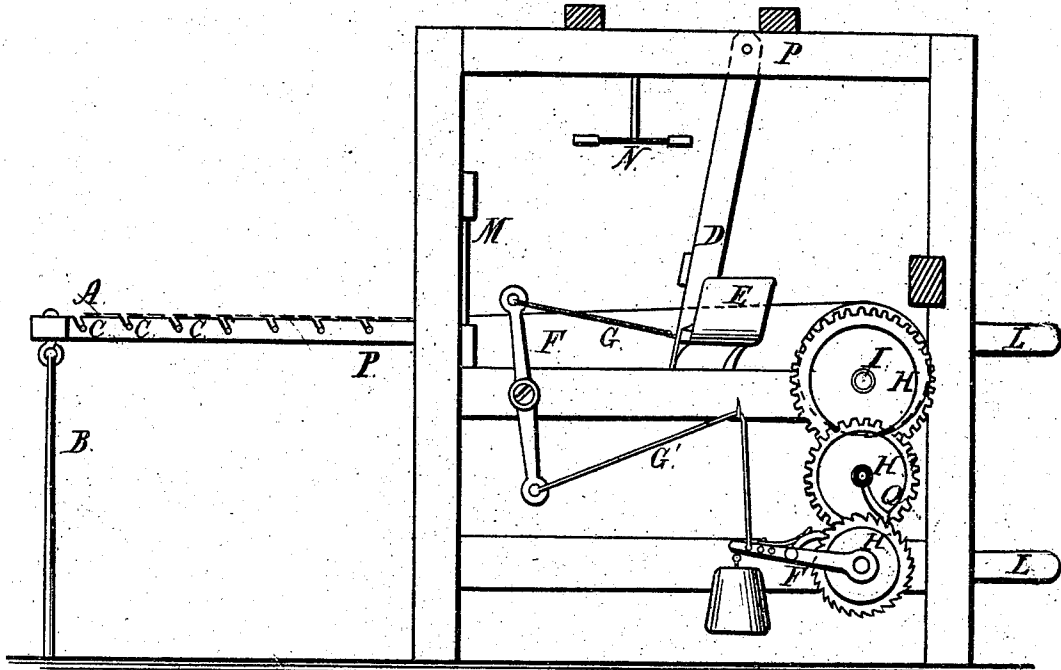
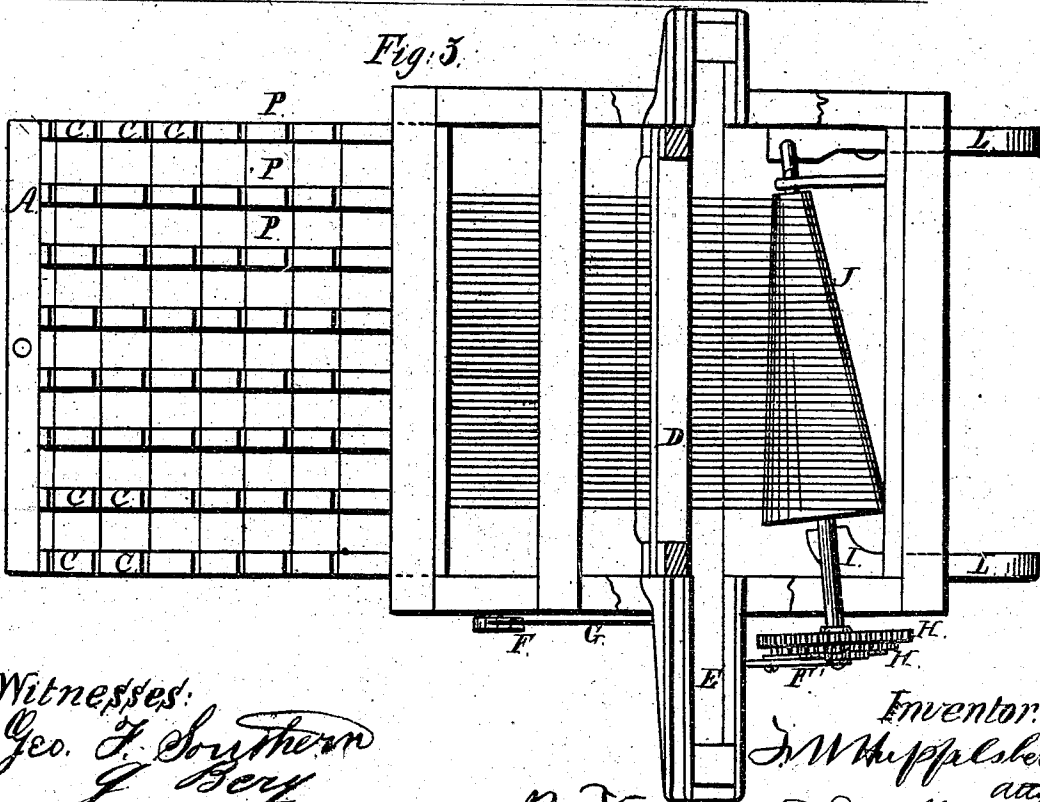


Fig. 3.



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Take-Up Rollers.

N<sup>o</sup> 60,844.

Patented Jul. 16, 1867.

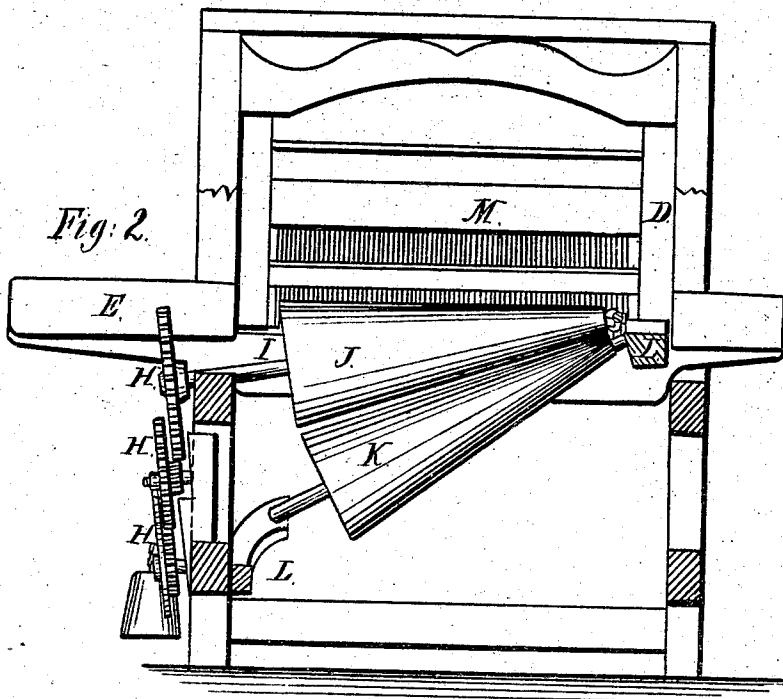
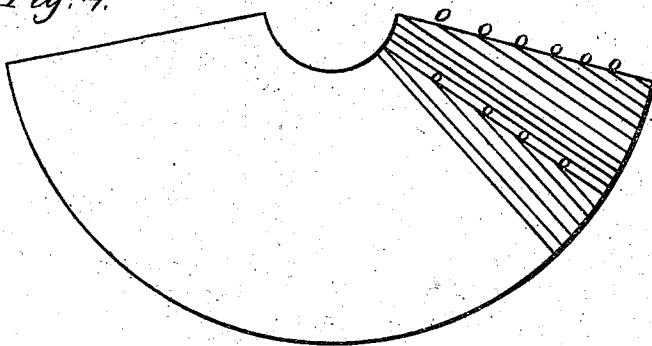


Fig. 4.



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# United States Patent Office.

F. W. HUPPELSBERG, OF NEW YORK, N. Y.

Letters Patent No. 66,844, dated July 16, 1867.

## IMPROVEMENT IN LOOMS.

The Schedule referred to in these Letters Patent and making part of the same

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, FREDERICK W. HUPPELSBERG, of No. 83 West Thirty-Seventh street, in the city, county, and State of New York, have invented a new and useful Improvement in Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, in which—

Figure 1 is an elevation in side view of a loom containing my improvement.

Figure 2 is a front elevation.

Figure 3 is a plan view.

Figure 4 is a diagram which shows the shape of the cloth woven on the loom, and also the manner of placing or interweaving the weft in the warp during the process of weaving.

The object of this invention is to construct or produce a loom which will automatically weave goods whose edges shall describe concentric circles, so that when the ends of a piece of goods woven on such loom are united the said piece forms a hollow truncated cone, the projection of which resembles the diagram, fig. 4, said figure being a representation of a piece of goods produced or woven by means of my invention.

My invention also embraces features which are applicable to ordinary looms.

The frame of the loom is of any suitable construction or form to sustain the various parts, and I have shown only such parts of a loom as are necessary, in order to show and illustrate my improvement.

The letter D designates the lathe, whose swords are suspended from the upper part of the frame. The shuttle-race E is attached to the lathe as usual. Said shuttle-race is so made as to extend a greater distance beyond one side of the frame of the loom than it does beyond the other side, for the purpose hereinafter explained. The warp-threads are guided and separated, as usual, by the reed in the lathe, and they are also guided and separated as they enter the loom by means of rods M, placed vertically in the rear part of the frame of the loom. The bobbin or spool-frame A, which holds the spools of the warp, is arranged in a horizontal position instead of a vertical or inclined position. Said spool-frame A is hinged to the frame of the loom or otherwise attached to it; so that it may be swung upwards against the loom when it is not in use, and when said frame A is in its horizontal position it is supported therein by legs B, one or more resting on the floor. The frame A is composed of numerous parallel strips or ribs P P, which have angular slots C C made across them at regular distances apart to receive the ends or journals of the spools or bobbins containing the warp, the ribs P being far enough apart to allow space between them for the bobbins.

By means of this arrangement I am enabled to make the spool or bobbin-frame a part of the loom itself, and to dispose the spools in a horizontal position, and to dispense with the usual costly and cumbrous independent bobbin-frame now employed for holding the warp-spools.

The cloth woven upon the loom is taken up by means of a system of conical rollers or surfaces. In this example of my invention I employ two conical take-up rollers J and K, whose axes are so arranged that the upper side of the periphery of the upper roller J is level with the cloth that is being woven, its axis being consequently inclined, as shown in the drawing. The bearings of said upper roller are fixed, but those of the lower roller K are movable, being formed in the inner ends of levers L L, the outer ends of which are made heavy or else are provided with movable weights that cause the lower end to be pressed constantly upwards against the under surface of the upper roller. The lower roller receives its motion from frictional contact with the upper roller J, and the latter is rotated by means of a train of geared wheels, H H, which are made to rotate by means of the vibration of the lathe through the cords G G' and levers F F', the latter lever F' being weighted, and being provided with a spring-pawl that engages the teeth of a ratchet-wheel on the lower gear H, on whose shaft the said lever F' is placed, turning loosely thereon. When the lever F' is moved upwards by the vibration of the lathe in beating up, the spring-pawl turns the gear H a proportional distance, and when the strain on cord G' is relieved by the return or backward motion of the lathe, the weight on said lever F' causes the lever to fall so that the spring-pawl can engage a fresh tooth of said ratchet-wheel, the ratchet and gear being prevented from turning backwards by means of a detent, Q, seen in fig. 1. Any other suitable take-up device may be employed instead of the one here shown. The warp is operated by means of a jacquard apparatus and leaves of harness in connection with a trap-board frame N; but I have not shown the jacquard nor the leaves

of harness, because the construction and operation of these devices are well known, and I do not claim any novelty in them. The cloth woven on the loom is taken above and over the front side of the upper roller J, thence under the same and over the back side of the lower roller, being then allowed to fall to the ground, or the cloth may be wound around the lower roller or upon another roller provided for the purpose. The shuttle is made to move through the shuttle-race E by any suitable means, and in order to increase the number of picks for that side of the cloth which is taken up the most rapidly by the take-up rollers, and also to increase the said picks in the ratio required by the increasing diameter of said rollers, I arrange the jacquard patterns so that the sheds in the warp will be produced in the variable manner illustrated by the straight lines in fig. 4, a portion of the sheds being made along the shut lines O O, and successively increasing in length until the shed extends across the whole breadth of the warp, when the weaving proceeds for a few picks with sheds of the whole breadth of the warp, as shown in fig. 4, after which a number of shorter picks, O O O, are introduced as before, followed again by picks going across the whole breadth of the warp, and in this manner the weaving proceeds for any length of goods required. By this means the goods are contracted in length along one side or edge, and increased in length along the other side or edge, the cloth being woven throughout in a perfect condition by reason of the shorter picks O O, whose length increases in any desired ratio according to the degree of curve to be given to the edge of the cloth, the successive shorter sheds extending in length more and more across the warp, so that the weft will at each successive throw of the shuttle engage one or more additional threads of the warp until at last the shed is produced clear across the warp. The cloth is therefore of greater length on one side than on the other, but there are no open spaces left in the cloth because the weft is put in so that the picks O gradually increase in length, a larger number of warp-threads being successively incorporated in or being made to form the shed for each successive throw of the shuttle in making the shorter picks.

The shuttle is driven clear across the loom at each pick, and therefore makes more slack in the weft than is required for the shorter picks, and in order to compensate therefor and produce a tight and good selvage at the inner ends of the shorter picks I elongate the shuttle-race on that side of the loom where the whole number of picks is produced, so that the shuttle, when returning to the left side of the loom, observing fig. 2, can travel a sufficient distance to allow the slack to be taken up, and to bring the weft snugly up to the interior line or edge of the shorter picks before fresh weft is drawn from the shuttle-bobbin. The elongation of the race is less than the whole width of the warp, so that the slack in the weft, produced by the said elongation when the sheds embrace the whole of the warp-threads, will be taken up before the shuttle reaches the opposite box. The cloth is taken up with uniformity by the conical rollers, whose taper is determined by the degree of enlargement to be given to one side of the cloth as compared to the other side, the jacquard being arranged to operate and produce the sheds of the length and in the order required.

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

1. I claim the conical or taper take-up rollers J K, constructed and arranged substantially as shown.
2. I also claim the horizontal warp spool-frame A, in combination with the conical take-up rollers J K, substantially as shown.

This specification signed by me this 23d day of February, 1867.

F. W. HUPPELSBERG.

Witnesses:

W. HAUFF,  
G. BERRY.