(12) **United States Patent**
Kile

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(54) **LOOM, WEAVING, STOCKS**

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Conrad Hile Erie Penn

Letters Patent

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Conrad Hile himself of his improvement in Constructing Looms for weaving the Cloth for making Stocks.

To all to whom these presents Shall come Be it known that I Conrad Hile of Erie in the County of Erie and State of Pennsylvania have invented a new and useful improvement in the Loom for weaving Stocks and that the following is a full and exact description of the construction and operation of the said machine as invented or improved by me The frame work may be made after the usual manner of putting together looms Take we the beam upon which the warp is wound; also that upon which the cloth is wound, and that on which it is strained all in their usual situations but my improvement consists in the form or mode of Constructing them and is governed in the following requisite to make the Stock set closely the neck and accommodate itself to the shape; viz that the selvage should be much longer than the centre of the cloth so that while the centre of the Stock fits the neck closely the selvage both at top and bottom is so loose as to pass easily to the passage of the shoe after the manner generally effected by inserting pieces of an angular shape around the top and bottom. The object of increasing the length of the selvage effected by means of the shape I give the beams above mentioned on their circumference a curvature to correspond to that of the Stock being straight across from one end to the other I form them with a concave circumference so proportioned that the girth of the centre of the beam is about one third less than that of each end and increases in a gradual scale till it arrives at its full height at each end thereof. Whereas the warp is spun in a form circular shape and as more through use requisite towards the selvage in order to shape and cause the stock to retain its shape they are warped in the beam from bottom by which means the number may be increased towards the selvage at pleasure. In order to prevent the warp from slipping down as it rises up the sides of the concave of the

a number of pins rising perpendicularly from the surface and near the
so as not to interrupt the winding of the warp upon or off the beam; A ratchet
wheel and hand is applied thereon as usual; the gears through which the
ends of the warp are passed are brought into the requisite semi-circular shape
by means of the bars on the top having their upper side cut into the same curve
as the beam; and the bottom of the lower bar cut into a convex of the same
proportion which brings the loops of the straight yarns into the requisite curve; The
ends of the warp are brought over the straining beam in front and beneath
the cloth beam beneath this said straining beam which has made a portion
of its under surface concave cut as to admit the cloth beam to lie or work
in this hollowed place; the latter being about one half the circumference of the
former (though the length will be the same) and consequently the concavity
of the latter will be in the same proportion say one half or whatever other
proportion may be used. The cloth beam is also sufficiently in the front of the
hollow beneath the straining beam to bring the line of concavity of the former
to correspond as nearly as possible with that of the latter so that the cloth has
no hindrance in passing from one to the other in the same semi-circular
shape and the straining beam is allowed to be loose upon its axis so that as
the cloth beam fills up it continues to press against the upper part of
the hollow and consequently causes the former to recede and leave room
for the accumulation of the cloth as it is wound and ratchet wheel are
adapted to the cloth beam as usual, I construct my said warp-spreader in a
different manner from the common principle it being necessary to subject
to the concavity of the beam. This I effect by giving to the lower bar into which
the needles (or rather their strips of steel such as clock springs) are inserted,
the same semi-circular shape as the straining beam so as best to fit its
circumference equally and it must also be brought into a sharp edge. Upon
that surface into this purpose better than wood and on the upper or sharp
edge slits are cut for the reception of the needles which when placed
inward of course assume the curved shape of the metal plate and ex-
actly fit the hollow of the beam. They are then soldered and secured.
The upper or top bar is made straight as usual and if of wood it must
also have a metal plate (strong & fastened) & sharp edge) into the slits of

which the ends of the Steel rods are soldered and secured upright at each end either of metal or wood are used to mount the ends of the top & bottom plates so as to keep them steady and by means of a Mortice and tenon with a thumb screw the Top plate may be released, and the rod changed for another, the mode of operating my said being different from the common method of connecting the bottoms of each upright to the same plane but in an obtuse angle though not much more than a right angle which is to be sufficiently long to reach to the axle of the shearing beam on which it is secured so as to play or revolve on said axis one arm being propelled on each end and is to be sufficiently long just to bring the sharp edge of the steel close upon the circumference of the Cylinder consequently to cause it by the motion given to the rod to revolve at a regular distance around the said beam. The arrangement of the needles &c. is the same as other looms which are to be more or less according to the pattern intended to be produced which can be varied on this loom as well as any other by altering the warp is opened by the motion of the needles and by means of a small shuttle one shot of which is made to pass through a thread either of Cotton or Silk then a bristle is placed and then another shot made and so on to suit the intention of the weaver. I propose adding the thread for the purpose of preventing the bristles from slipping out. Now it will be seen that at each bang of the rod the sharp edge brings the bristles straight by the side of each other in the plane of a section through the cylinder by which means they are not sheared out of a straight line as wrought by the side of each other shearing them according to the curve of the beam. I have the increased quality of warp prevents the possibility of them ever falling flat again. I propose to construct my looms to work not only singly but two or more at a time as power looms &c. The quantity of shear is increased as much each time as a good selvage will fill up the space between the bristles as will be requisite to give the cloth a uniform clear appearance What I claim as my invention in the above described machine and not previously known is the curve shape I give to all my beams & to the rod and secondly the manner of making the bevel stem circular bar of the rod, lastly the manner of joining the uprights of the rod by means of

away to the axis of the steering beam as already described & so that intent
In testimony that the above is a full, clear, and exact description of the Construction and operation of the said Machine as invented or discovered by me I have hereunto set my hand this thirtieth day of July Eighteen hundred and thirty five.

Witnesses
C. H. W. Thurston
Henry Shaw

Daniel Stiles

[15 00 ?]

(Patented 18 Sept. 1835)