

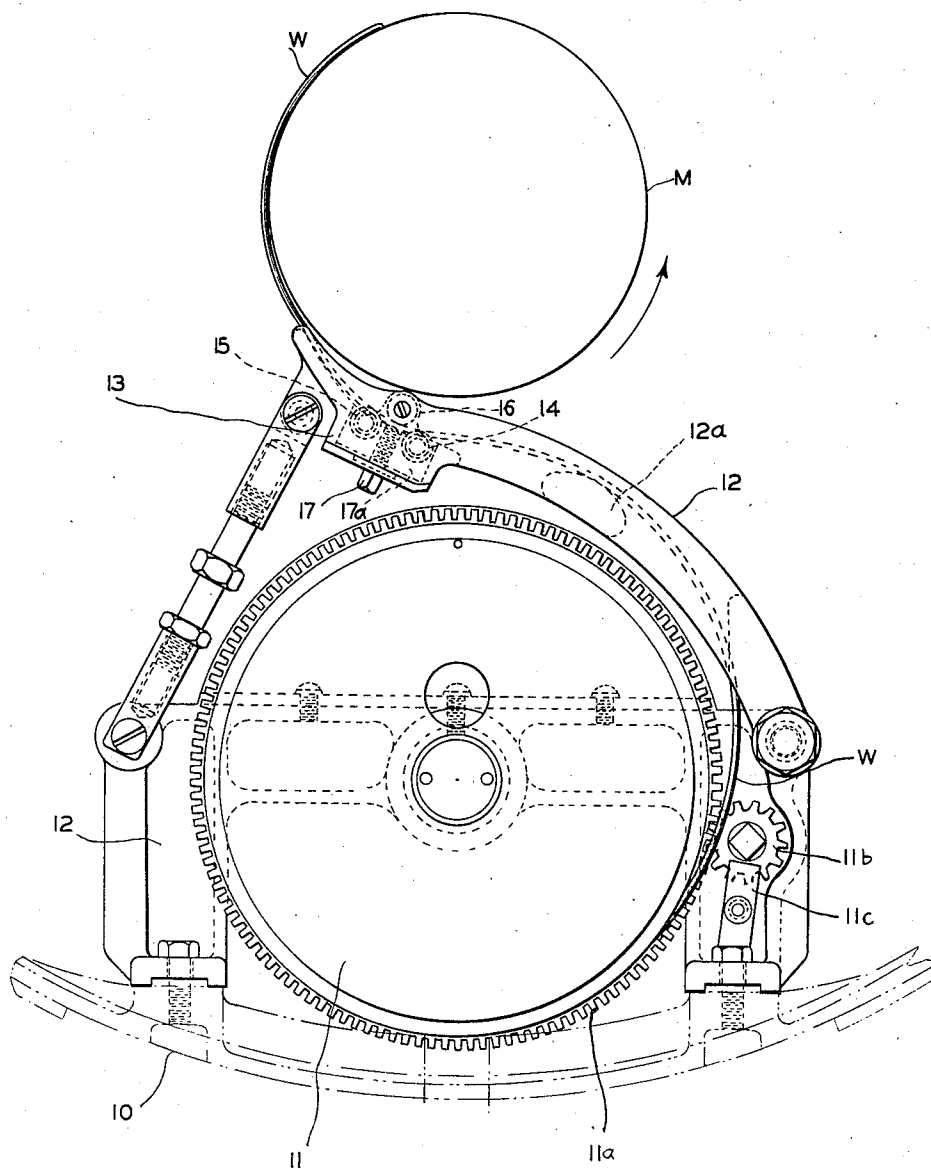
June 8, 1943.

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2,321,283

SPREADER FOR LOOMS

Filed Sept. 7, 1940



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2,321,283

SPREADER FOR LOOMS

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Application September 7, 1940, Serial No. 355,761

5 Claims. (Cl. 139—13)

This invention relates to spreaders for looms, and particularly to a spreader which may be used in a loom construction such as illustrated in application, Serial No. 350,230, filed August 3, 1940, for Loom apparatus and method.

Heretofore, looms have been provided with shuttles having thereon reels for wire or the like, and with spreaders for applying wire extended from the reels either to a fixed spindle, as for example, in a vertical loom, or to a moving mandrel, in the manner disclosed and claimed in the aforementioned patent application.

Spreaders as heretofore used for this purpose, however, have not been entirely satisfactory, particularly in the application of heavier wires to spindles or mandrels, because in the ordinary spreader, the wire is drawn onto the spindle or mandrel through suitable tensioning devices in the spreader, and is shaped about the spindle or mandrel by the tensioning device and the movement of the shuttle about the spindle or mandrel in coiling it thereon.

The purpose of the present invention is to provide an improved spreader of the type described in which the wire is pre-set in the spreader substantially to the curvature of the spindle or mandrel to which it is to be applied as it passes through the spreader and before it passes onto the spindle or mandrel.

Another purpose of the invention is to provide a spreader as set forth in the preceding paragraph in which the means utilized to set the wire in a given curvature before going onto the spindle or mandrel may be adjusted to permit effective use of the spreader for application of wire to spindles or mandrels of various diameters.

A further purpose of the invention is to provide an improved means for obtaining uniform tension in the application of the wire to the spindle or mandrel.

The foregoing and other purposes of the invention are attained by the spreader illustrated in accompanying drawing and described below. It will be understood that the invention is not limited to the specific form thereof shown and described.

The drawing is a side elevation of a spreader and reel showing their mountings on a loom shuttle and their association with a spindle or mandrel to which the wire is applied.

In the drawing, the numeral 10 indicates one of the shuttles of a rotary, vertical or horizontal loom, the shuttle is shown in chain-dotted lines. The numeral 11 indicates a reel for wire or the like mounted to rotate in a supporting bracket 12

secured to the shuttle 10, and the number 12 indicates generally a spreader of a known type which, in accordance with the present invention, is provided with a wire-bending apparatus indicated generally at 13, and which may include spaced rolls 14 and 15, and a fixed roll 16, rolls 14 and 15 comprising an adjustable pair of rolls which may be adjusted toward and from roll 16, as by set screw 17, rollers 14 and 15 being mounted on a suitable adjustable block 17^a. The wire W from the reel 11 may be suitably guided through the spreader, as will be understood by skilled artisans, but is threaded through the wire-bending apparatus 13 between the pair of rolls 14 and 15, and the fixed roll 16, preferably over an anvil 12^a arranged in the spreader so as to guide the wire into proper cooperation with the wire-bending rollers. The relative spacing of rolls 14, 15 and 16 will determine the curvature to be imparted to the wire W, as it passes through the spreader. From the rolls 14, 15 and 16, the wire passes in the usual way from the applying end of the spreader, as shown, onto the mandrel M. Rolls 14, 15 and 16 may be adjusted so that the curvature imparted to the wire will be substantially that of the surface of the mandrel or spindle M.

The reel may be provided with a ring gear 11^a thereon, with which is meshed a spur gear 11^b on which bears a spring 11^c, to prevent over-running of the reel as the wire W is being drawn therefrom, this constituting a tensioning device having mechanical advantage which causes requisite uniform tension to be applied to the wire in drawing it from the reel onto the mandrel or spindle M. This controls the tension independently of the skill of the operator and insures a uniform product.

It will be understood that in the loom there may be a series of shuttles 10 arranged to be revolved about mandrel or spindle M in a known manner, and in the direction of the arrow shown in the drawing, so as to coil the wire W about the spindle or mandrel. These coils, of course, may be interwoven in a loom apparatus such as shown in the prior application above referred to, with textile or other wire ends, to make a fabricated structure on the mandrel.

It will be apparent from the foregoing that the present invention consists essentially in the combination of a wire-bending device with a spreader so that the wire issuing from the spreader may be pre-shaped substantially to the curvature of a spindle or mandrel on which the wire is to be coiled or interwoven either through the wire or

textile ends, the bending device being associated with a spreader adjacent the end thereof, which applies the wire to the mandrel or spindle, and if desired, also an improved tensioning device for association with the reel supplying such a spreader.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. In a loom of the character described a spreader element mounted relatively to revolve around a mandrel or spindle, means on said element for guiding a stretch of wire from a source of supply thereof onto the mandrel or spindle, and a wire-bending device mounted on said element adjacent the applying end thereof and comprising spaced members between which the wire passes to bend the same substantially to the curvature of the mandrel or spindle prior to its application thereto.

2. In a loom of the character described a shuttle mounted relatively to revolve around a mandrel or spindle, a spreader element carried by said shuttle, a reel for wire rotatably mounted on said shuttle, means on said element for guiding a stretch of wire from said reel onto the mandrel or spindle, a wire-bending device mounted on said element adjacent the mandrel or spindle and including spaced elements between which the wire passes to bend the same substantially to the curvature of the mandrel or spindle prior to its application thereto, and wire-tensioning means comprising speed reducing mechanism including an idler wheel and yielding means frictionally retarding said idler wheel to resist rotation of the reel with mechanical advantage, whereby uniform tension is applied to the wire as it passes through the spreader.

3. In a loom of the character described a spreader element mounted relatively to revolve around a mandrel or spindle, means on said element for guiding a stretch of wire from a source of supply thereof onto the mandrel or spindle, a wire-bending device mounted on said element ad-

5 adjacent the applying end thereof and comprising spaced members between which the wire passes to bend the same substantially to the curvature of the mandrel or spindle prior to its application thereto, and an anvil mounted on said element between said reel and said wire-bending device over which the wire is trained to direct the wire into the wire-bending device.

4. In a loom of the character described a spreader element to be mounted for relative movement around a mandrel or spindle, said element having an applying end arranged to be adjacent the surface of the mandrel or spindle, guide means on said element for guiding a stretch of wire from a source of supply onto the mandrel or spindle at said applying end of the element, and a wire-bending device mounted on said element adjacent said applying end thereof for pre-bending the wire substantially to the curvature of the mandrel or spindle to which it is to be applied, said wire-bending device comprising a pair of spaced rolls and a third roll opposite the pair whereby the wire may be passed between the pair of rolls and the third roll as it passes through the applying end of the element.

5. In a loom of the character described a spreader element to be mounted for relative movement around a mandrel or spindle, said element having an applying end arranged to be adjacent the surface of the mandrel or spindle, guide means on said element for guiding a stretch of wire from a source of supply onto the mandrel or spindle at said applying end of the element, and a wire-bending device mounted on said element adjacent said applying end thereof for pre-bending the wire substantially to the curvature of the mandrel or spindle to which it is to be applied, said wire-bending device comprising a pair of spaced rolls and a third roll opposite the pair whereby the wire may be passed between the pair of rolls and the third roll as it passes through the applying end of the element, said pair of rolls and said third roll being relatively adjustable to vary the curvature imparted to the wire.

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