

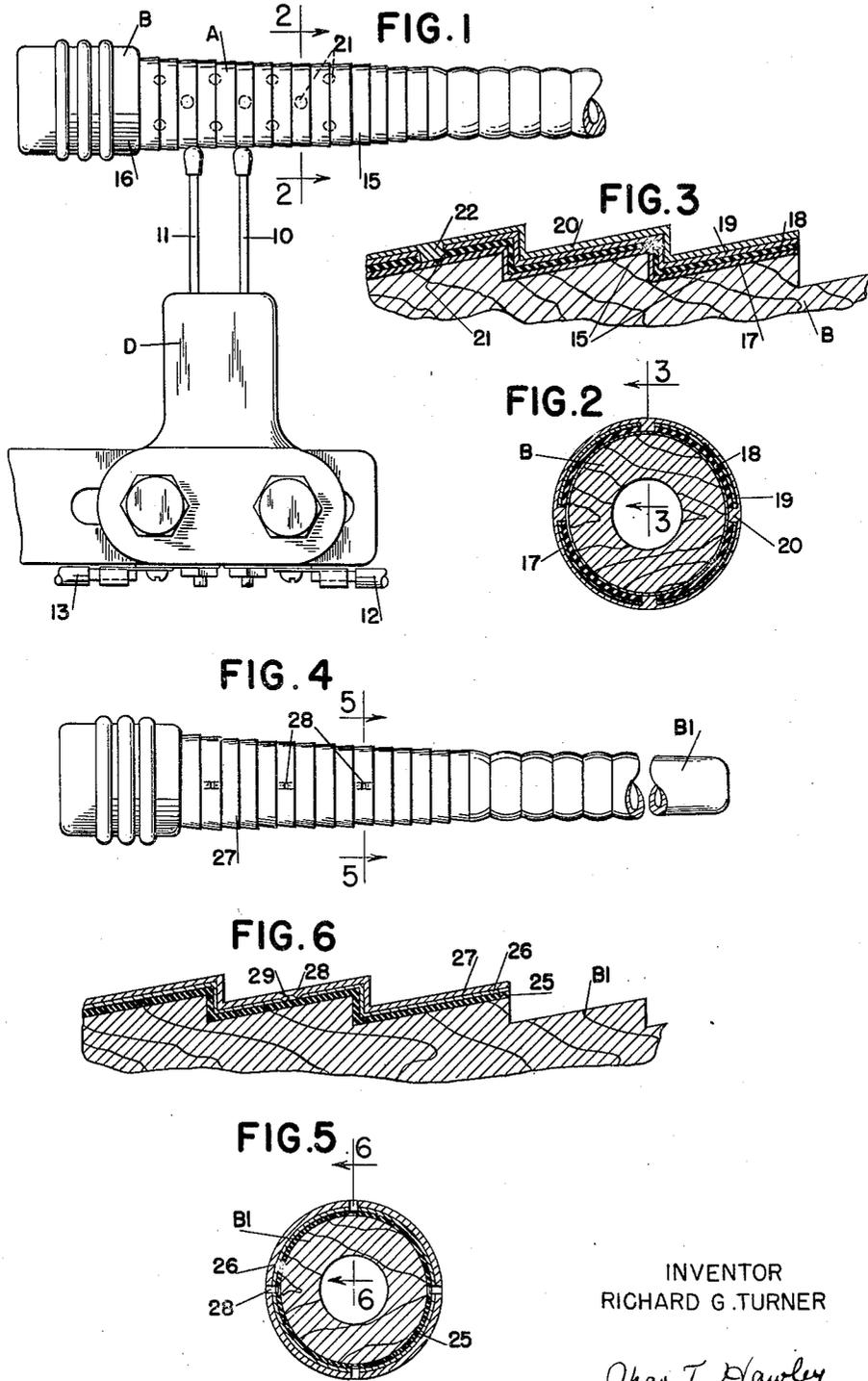
April 10, 1951

R. G. TURNER

2,548,454

WEFT BOBBIN AND METHOD OF MAKING THE SAME

Filed April 27, 1949



INVENTOR
RICHARD G. TURNER

Chas. T. Hawley

ATTORNEY

UNITED STATES PATENT OFFICE

2,548,454

WEFT BOBBIN AND METHOD OF MAKING THE SAME

Richard G. Turner, Worcester, Mass., assignor to
Crompton & Knowles Loom Works, Worcester,
Mass., a corporation of Massachusetts

Application April 27, 1949, Serial No. 89,860

8 Claims. (Cl. 139—289)

1

This invention relates to improvements in bobbins more particularly adaptable for use with electric weft detectors of looms and to the method of their manufacture and it is the general object of the invention to provide a bobbin having a metal ferrule mounted on an elastic sleeve or the like on the bobbin.

A form of electric weft detector which has come into general use employs two detector fingers mounted on an insulated base and adapted to be electrically connected by a metal ferrule on the weft carrier or bobbin when the weft is depleted. Such ferrules are ordinarily applied directly to the body of the bobbin and when the latter is made of a moisture absorbent material such as wood there is likelihood that contraction and expansion of the bobbin will affect the bond between the bobbin and the ferrule. If the bobbin expands due to absorption of considerable moisture from the atmosphere there is likelihood that it will split the ferrule, and if the bobbin becomes dry and contracts it may shrink away from the ferrule so that the latter is loosened.

It is an important object of the present invention to provide a bobbin having an elastic or compressible coating or film between the metal ferrule and the bobbin to absorb variations in size of the bobbin. The coating may be in the form of either a rubber sleeve or rubber paint applied to a bobbin.

It is another object of the invention to provide a bobbin having a zone thereof covered with a soft elastic material to which is applied an electric current conducting coating on which the ferrule is electro-deposited.

It is a further object of the invention to provide an improved method by which a bobbin may have applied thereto a metal ferrule deposited on an elastic sleeve or the like.

With these and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts hereinafter described and set forth.

In the accompanying drawings, wherein two forms of the invention are shown,

Fig. 1 is a plan view of the preferred form of the invention shown in association with an electric weft detector,

Fig. 2 is an enlarged vertical section on line 2—2 of Fig. 1,

Fig. 3 is an enlarged detailed vertical section on line 3—3, Fig. 2,

Fig. 4 is a plan view of a bobbin made according to the modified form of the invention,

Fig. 5 is an enlarged vertical section on line 5—5, Fig. 4, and

2

Fig. 6 is an enlarged detailed vertical section on line 6—6, Fig. 5.

Referring more particularly to Fig. 1, the preferred form of bobbin designated at B cooperates with a weft detector D having right and left detector fingers 10 and 11. These fingers are insulated from each other and are connected to wires 12 and 13 leading to a loom controlling circuit not shown herein. So long as there is sufficient weft on the bobbin for continued weaving the fingers will be kept insulated from each other on each weft detecting beatup of the loom, but when the weft becomes depleted sufficiently to require replenishment the ferrule will be uncovered and the fingers 10 and 11 will be electrically connected to close the aforesaid circuit.

It is usual to have the fingers 10 and 11 connected by some form of metal ferrule or the like on the bobbin, but in the past these ferrules have been applied directly to the body of the bobbin and changes in the size of the bobbin due to variation in moisture content have had an unfavorable effect on the ferrules, either bursting them or rendering them loose.

In carrying the preferred form of the present invention into effect the bobbin, which may be made of wood, has a series of frusto-conical steps 15 cut thereon, these steps diminishing in diameter from the butt end 16 of the bobbin toward the tip end. An adhesive 17 is then applied to the detecting zone of the bobbin designated at A and a rubber sleeve 18 fitted over the adhesive. The sleeve will be of such an internal diameter as to require some stretching to fit over the bobbin. The rubber sleeve is then covered with a coating 19 of electric current conducting paint, which may conveniently contain one of the silver compounds. The metal ferrule 20 is then applied to this coating of paint by an electrolytic process.

In order that the ferrule may be held tightly to the bobbin the sleeve 18 is provided with a number of perforations 21 into which the paint flows so that when the ferrule is electro-deposited on the paint some of the metal of the ferrule will flow into the perforations to resist angular and longitudinal motion of the ferrule relatively to the body of the bobbin. Fig. 3 shows a projection 22 of the metal ferrule extending into one of the perforations 21.

In the modified form of the invention the elastic coating 25 is applied directly to the body of the bobbin B1 in fluid form as a paint or gum. The layer of electric current conducting paint 26 is then applied to the rubber gum after it has dried. The outer metallic ferrule 27 is then

3

electrically deposited on the paint, after which indentations 28 are struck into the ferrule causing a part thereof, as indicated at 29 in Fig. 6, to penetrate the layer of rubber paint 25 for the purpose of preventing the ferrule from moving angularly and longitudinally on the bobbin. During the later stages of drying of the rubber gum or paint it contracts and is under a condition of tension or stretch as in the case of the rubber sleeve.

In both forms of the invention it will be understood that the frustro-conical steps will assist in preventing longitudinal movement of the ferrule on the bobbin. In both forms of the invention the metal ferrule is separated from the wood part of the bobbin by a coating of elastic material, such as soft rubber, which will compress as the bobbin expands and thereby protect the metal ferrule, or expand as the bobbin contracts and thereby maintain contact with both the bobbin and the ferrule.

The invention also relates to the method of making the bobbin, this method in both forms of the invention consisting of the steps of applying a soft elastic body, such as a sleeve or gum, to the bobbin so that the elastic layer is under some tension, applying a coating of an electric conducting paint, and thereafter electro-depositing a metal ferrule on the current conducting paint. By this method neither the conducting paint nor the ferrule has direct contact with the bobbin. In the preferred form of the invention the method contemplates the further step of providing the sleeve with perforations into which part of the metal ferrule extends to lock the ferrule in place, and preferably cementing the sleeve to the bobbin.

Having thus described the invention it will be seen that changes and modifications of the foregoing specific disclosure may be made without departing from the spirit and scope of the invention.

What is claimed as new is:

1. In a bobbin for an electric weft detecting system of a loom, said bobbin having a moisture absorbent body the size of which changes with the moisture content thereof, a layer of soft elastic material surrounding part of said body, and a metal ferrule surrounding said layer and spaced by the latter from said body.

2. In a bobbin for the electric weft detecting system of the loom, said bobbin having a moisture absorbing body the size of which changes with the moisture content thereof, a layer of soft elastic material under tension surrounding part of said body, and a metallic ferrule surrounding said layer and spaced thereby from said body.

3. In a bobbin for the electric weft detecting system of a loom, the bobbin having a body made of a material which expands and shrinks with varying degrees of moisture content, an elastic soft rubber sleeve on said body under normal

4

tension and being compressed when said body expands and expanding when said body shrinks, and a metal ferrule on said sleeve spaced by the latter from said body.

4. In a bobbin having a body the size of which changes with changes in the moisture content thereof, a sleeve of soft elastic rubber on said body having perforations therethrough and secured to said body, and a metallic ferrule on said sleeve spaced by the latter from said body and having portions thereof extending into said perforations.

5. The method of making a bobbin having a body the size of which varies with the moisture content thereof, said method consisting of the following steps: applying a layer of soft elastic rubber to a portion of the body of the bobbin, applying an electric current conducting paint to said layer of rubber, and electro-depositing a metallic ferrule on the paint.

6. The method of making a bobbin having a body the size of which varies with the moisture content thereof, said method consisting of the following steps: cementing a preformed soft elastic rubber sleeve to a part of said body of the bobbin, applying a coating of electric current conducting paint to said sleeve in such manner that the latter keeps said paint out of contact with the body of the bobbin, and electro-depositing a metallic ferrule on said paint.

7. The method of making a bobbin having a body the size of which varies with the moisture content thereof, said method consisting of the following steps: applying a soft elastic rubber sleeve formed with perforations therethrough to a part of the body of the bobbin, coating said sleeve with an electric current conducting paint in such manner that the paint flows into the perforations in the sleeve, and electro-depositing a metallic ferrule on said paint in such manner that parts of the ferrule extend into said perforations of the sleeve.

8. The method of making a bobbin having a body the size of which varies with the moisture content thereof, said method consisting of the following steps: applying a layer of rubber gum to part of said body, thereafter coating the surface of said layer of gum with electric current conducting paint, and thereafter electro-depositing a metallic ferrule on said paint.

RICHARD G. TURNER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,042,708	Fallscheer	June 2, 1936
2,229,586	Ott	Jan. 21, 1941
2,327,738	Perry	Aug. 24, 1943
2,482,446	Turner	Sept. 20, 1949