Nov. 12, 1940. E. W. REYNOLDS 2,221,555

APPARATUS FOR COVERING CORES

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FIG. 1.

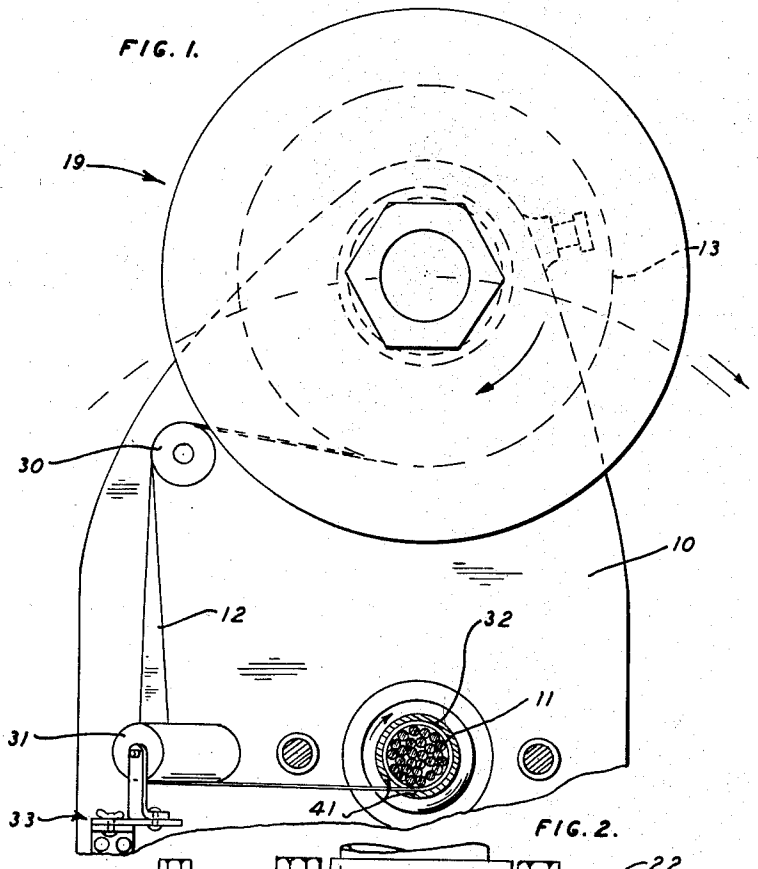
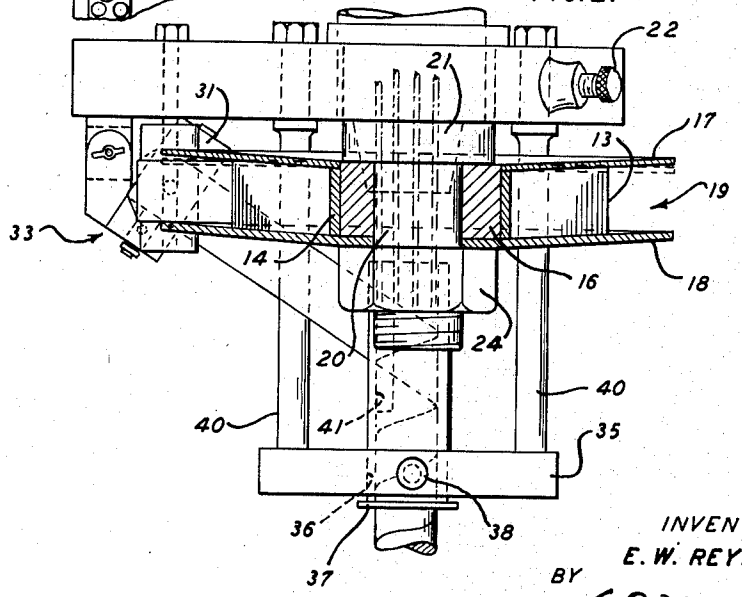


FIG. 2.



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APPARATUS FOR COVERING CORES

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13 Claims. (Cl. 57—3)

This invention relates to an apparatus for covering cores and more particularly to an apparatus for serving tape to an advancing core.

An object of the invention is to provide an apparatus for efficiently and uniformly serving a tape to a core.

With this and other objects in view the invention contemplates an apparatus comprising a rotary element, through the axis of rotation of which a core is advanced, supporting a tape supply reel having normally plane and normally dished heads to clamp a tape pad therebetween and force it into dished formation to apply tension to the tape as it is drawn off the reel and directed over guide rolls to a slotted tubular guide in which the tape is wound about the core.

Other objects and advantages will be apparent from the following detailed description taken in conjunction with the accompanying drawing, wherein

Fig. 1 is a front elevational view of the apparatus; and

Fig. 2 is a top plan view of the apparatus, the reel being shown in section.

Referring now to the drawing, numeral 10 designates a supporting element mounted for rotation in any suitable manner (not shown) about the axis of an advancing core 11 which is to be served with tape 12 from a pad 13. In the present instance, the pad 13 consists of adhesive saturated tape of a desired width, coiled tightly on a tubular core 14 which in the present instance is cardboard. The pad 13 has normally flat side walls and may be disposed upon a cylindrical hub 16 between heads 17 and 18 of a reel indicated generally at 19. The hub 16 is fixed to the head 17 and is removably mounted upon a reduced portion 20 of a shaft 21, the latter being rotatably carried by the element 10 and provided with a customary braking means (not shown) to apply a desired drag on the shaft, the braking means being variable through an adjusting screw 22. The outer end of the reduced portion 20 of the shaft 21 is threaded to receive a compression nut 24 for removably securing the reel 19 to the shaft. The head 17 of the reel is normally flat but may be flexed when force is applied to the opposite wall of the pad 13. The head 18 is dished, as illustrated in Fig. 2, so that, when force is applied by the clockwise rotation of the compression nut 24, the dished head will be moved into intimate engagement with the pad and the convolutions of the pad will be moved to conform to the dished head, such movement causing a deformation of the head 17, as shown in solid lines (Fig. 2), the head 17 having been moved from its position illustrated by the dotted lines in this figure. The head 18 may also be described as having a warped pad engaging surface, the term "warped" meaning that the contour of the surface engaging the pad is not flat throughout and that all points thereof do not lie in a common plane.

The tape 12, in passing from the pad 13, is directed by rolls 30 and 31 to a tubular guide 32, the rolls being carried by the rotary element 10. A cross member 35 apertured at 36 to removably receive a guide tube 37 held in place by a thumb screw 38 is supported by arms 40 projecting outwardly from the rotary element 10 to position the guide tube in axial alignment with the advancing core 11 a predetermined distance beyond the plane of the reel 19. The roll 31 is adjustably supported, as at 33, by the rotary element 10 in a position to direct the tape 12 through a slot 41 in the guide tube at the desired angle for spirally winding the tape on the advancing core. The inner diameter of tubular guide 37 is of sufficient size to support the core adjacent the point of application of the tape to prevent lateral movement of the core by the pull of the tape and also to assist in applying the tape to the core smoothly.

This apparatus may be employed in combination with stranding machines or the like for forming cables which are to be covered or the apparatus may be employed to cover a single strand.

During the operation of the apparatus the rotating means (not shown) for the element 10 and the takeup reel (not shown) for advancing the core are so coupled to cause the apparatus to serve the tape spirally around the core and cause the edges of the tape to overlap on the core. As the tape is withdrawn from the reel it is guided to the slot 41, which is in alignment with the incoming tape at all times during the rotation of the unit, allowing the tape to enter the guide without engaging the edges thereof. The tape, therefore, passes in a plane tangent to the core and does not engage the guide until it has started its wrapping movement about the core.

When the pad 13, with normally flat walls, is disposed between the heads 17 and 18 and forced into the dished formation shown in Fig. 2 a predetermined uniform pressure is applied to each convolution of the tape and this pressure is maintained by the resilient force of the head 17 throughout the unwinding of the pad.

In the present embodiment of the invention

only one reel 19 and a uni-slotted guide 37 are illustrated but it should be understood that a plurality of the tapes may be simultaneously served to the core by radially positioning other reels upon the rotary element 10 and substituting a multi-slotted guide 37 for the one shown.

Furthermore, the embodiment of the invention herein disclosed is illustrative only and may be widely modified and departed from in many ways without departing from the spirit and scope of the invention as pointed out in and limited only by the appended claims.

What is claimed is:

1. In an apparatus for covering cores, a reel having heads spaced to receive a pad of covering tape therebetween, one of the heads having a dished inner wall, and means for moving the heads relative to each other to cause the pad to conform to the dished inner wall.

2. In an apparatus for covering cores, a reel having a resilient head and a dished head spaced to receive a pad of covering tape therebetween and means for moving the heads relative to each other to cause the resilient head and the pad to conform to the dished head.

3. In an apparatus for covering cores, a reel having a resilient head and a dished head spaced to receive a pad of covering tape therebetween and means for moving the heads relative to each other to cause the resilient head and the pad to conform to the dished head, and means for limiting the relative movement of the heads for applying a predetermined tension to the tape.

4. In an apparatus for covering cores from a spirally wound pad of covering material having normally flat walls, means for directing the covering material to an advancing core and means for applying a predetermined pressure to the walls of the pad to create a uniform tension for all of the convolutions of the material.

5. In an apparatus for covering cores, a reel having a dished head and a normally flat head, a pad of covering tape having normally flat walls disposed on the reel between the heads, means for directing the tape from the reel to an advancing core and means for relatively moving the heads to force the plane head and the pad to conform to the dished head to apply a predetermined pressure to all convolutions of the tape in the pad.

6. In an apparatus for covering cores, means for supporting a supply pad of spirally wound covering tape, means for removing the tape at a uniform speed, and means for applying pressure to the side wall areas of the pad to grip all of the convolutions of tape simultaneously.

7. In an apparatus for covering cores, means for supporting a supply pad of spirally wound covering tape, means for removing the tape at a uniform speed, and means for applying pressure to the side wall areas of the pad to grip all of the convolutions of tape simultaneously and apply a predetermined uniform tension thereto as the tape is removed.

8. In an apparatus for covering cores, means for supporting a pad of covering tape, a dished member disposed adjacent the pad, and resilient means to cause the pad to conform to the dished member.

9. In an apparatus for covering cores, means for supporting a pad of covering tape, a dished member disposed adjacent the pad, and resilient means to cause the pad to conform to the dished member and apply a uniform pressure to the side wall areas of the pad.

10. In an apparatus for covering cores, a member to support a spirally wound pad of covering tape, an abutting member disposed adjacent one wall of the pad, a resilient member disposed adjacent the other wall of the pad, and means to hold the pad and members against relative rotation and cause predetermined pressure on all convolutions of the pad simultaneously.

11. In an apparatus for covering cores, a reel for a pad of covering tape having a warped pad engaging surface, and means to move the pad to cause the pad to conform to the warped surface of the reel.

12. In an apparatus for covering cores, a reel for a pad of covering material having a head disposed upon each side of the pad, one of the heads having a warped pad engaging surface, the other head being conditioned to cause the pad to conform to the warped surface when one of the heads is moved toward the other, and means to cause such movement.

13. In an apparatus for covering cores, a reel for a pad of covering material having a head disposed upon each side of the pad, one of the heads having a warped pad engaging surface, the other head being conditioned to cause the pad to conform to the warped surface and cause application of a predetermined pressure to the pad throughout the side wall area thereof when one of the heads is moved toward the other, and means to cause such movement.

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