

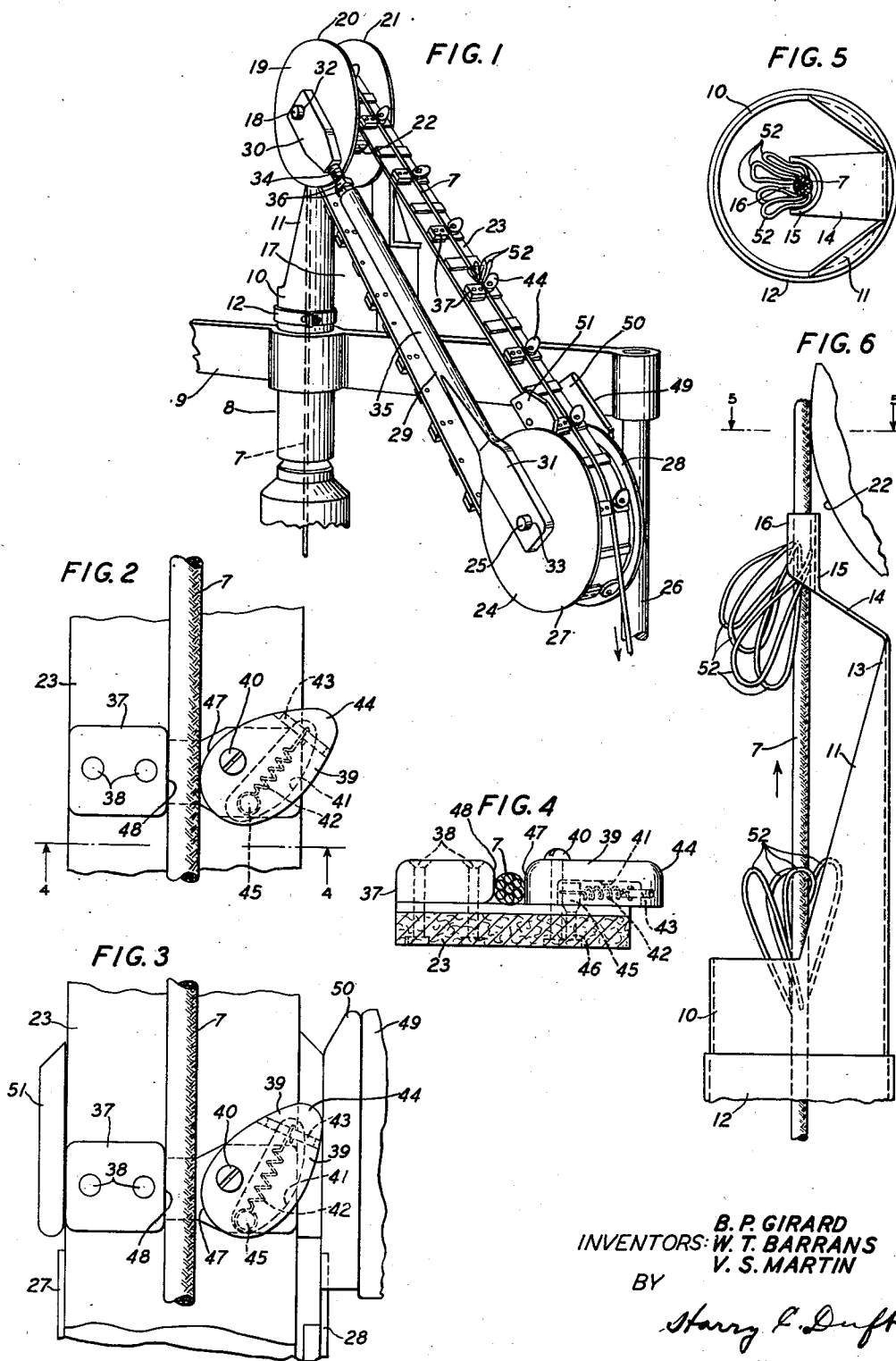
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TAKE-UP MECHANISM

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TAKE-UP MECHANISM

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This invention relates to a take-up mechanism, and more particularly to apparatus for drawing a braided cord through a braider.

The primary object of this invention is to provide an apparatus which improves the quality of cordage from a braiding machine and operates with an increase in economy by reducing the costs of maintenance.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing, which represents one specific embodiment of the invention;

Fig. 1 is a perspective view of a take-up mechanism embodying the features of the invention;

Fig. 2 is an enlarged fragmentary plan view of the endless belt and a cord holding device clamping a section of cord;

Fig. 3 is an enlarged fragmentary plan view of the endless belt and a cord holding device at one of the opening cams;

Fig. 4 is a section on line 4—4 of Fig. 2;

Fig. 5 is a plan view of the free conductor loop comb as it appears from line 5—5 of Fig. 6; and

Fig. 6 is an enlarged elevation view of the free conductor loop comb.

Referring now to the drawing wherein like reference numerals designate corresponding parts throughout the several views, the braided cord 7 from a braiding machine of any well-known type passes upwardly through a cylindrical chuck 8 rigidly supported in a cross beam 9, as illustrated in Fig. 1. Fitted in chuck 8 is the cylindrical base portion 10 of the free conductor loop comb 11, which is secured in position by any well-known means such as clamp 12.

Referring now to Fig. 6, the vertical extension 13 of the loop comb 11 bends inwardly at 14 and takes the shape of a semi-cylindrical sleeve 15 with a vertical trough 16 with its open side opposite the take-up mechanism. The axis of sleeve 15 lies directly above the axis of the cylindrical base portion 10.

Mounted on a cross beam 9 (Fig. 1) is upright 17, which accommodates and rigidly supports shaft 18 upon which rotates flanged pulley 19. Flanges 20 and 21 of pulley 19 extend beyond the horizontal drum surface 22 over which the belt 23 passes for a purpose, as will hereinafter be described. Flanged pulley 24 rotates on shaft 25, which is adjustably supported by suitable means to upright 26. Pulley 24, like pulley 19, has flanges 27 and 28, the purpose of which will be set forth hereinafter. Suitable means, not shown, are provided for driving pulley 24.

Positioned between the pulleys 19 and 24 and spacing shafts 18 and 25 is an adjustable turn-buckle arrangement 29. Flattened lug portions 30 and 31 carry circular openings 32 and 33 to receive the shafts 18 and 25 respectively. A cir-

cular threaded shaft 34 fits into the hollow cylindrical column 35 where its position is determined by adjustment of nuts 36 as may be readily observed from the drawing.

Fastened in spaced relation to belt 23 along one edge of its outer periphery are the fixed dogs 37, which are secured in position by suitable means such as rivets 38 (Figs. 2, 3, and 4). Adjacent to fixed dogs 37 are the movable dogs 39 secured to belt 23 and pivoted thereat by screws 40. Each pivoted dog 39 contains an oval-shaped cavity 41 in its lower face, which retains spring 42. One end of spring 42 is looped over a fixed pin 43 which extends transversely of the apex 44 of dog 39. The other end loops about the projecting head 45 of rivet 46 which is immovable in belt 23. When the cam-like nose of dog 39 rests in closest proximity to the fixed dog 37, the spring 42 is under a slight tension. As dog 39 moves in a counterclockwise direction about pivot 40, the space between the nose 47 and the gripping surface 48 of fixed dog 37 increases to permit the reception of cord 7, and the spring 42 is placed under a greater tension. This tension urges the gripping nose 47 against the cord 7 and thrusts the cord against the holding surface 48 of fixed dog 37. Movement of the belt 23 in a direction as indicated by the arrow in Fig. 2 will further wedge the cord in a firm position between the anchoring dogs 37 and 39. Apex 44 of the movable dog 37 then projects laterally beyond the edge of belt 23.

Positioned immediately in advance of lower pulley 24 at the discharge end of the capstan is a cam member 49, which serves to unlock the movable dogs 39 and release the cord 7. Cam member 49 is U-shaped, having flanged portions 50 and 51, and is suitably secured to cross beam 9. Belt 23 passes through the channel of cam device 49. The flange portion 50 serves to strike the projecting apex 44 of pivoted dog 39 to rotate it counterclockwise about pivot 40 and release its grip on cord 7. Flange 51 lies opposite to flange 50 and serves to restrain belt 23 from lateral displacement when dog 39 is being actuated by cam 50 (Fig. 3). After a dog 39 has been actuated by the cam, it passes onto the flanged pulley and is then held in actuated position by the flange of the pulley until it leaves the pulley. A similar device, not shown, is suitably attached under the lower side of pulley 19 to upright 17 to open the holding members on belt 23 to receive the cord from the loop comb 11.

The operation of the above described apparatus is as follows: Braided cord 7 as it leaves the braiding machine passes up through the central passage of chuck 8 and base portion 10 of the conductor loop comb 11. Unsheathed conductor looped portions 52 of cord 7, as shown in the

lower portion of Fig. 6, extend vertically in disarray about the cord 7. As the cord 7 moves upward, these reach the comb portion 15 and are pressed downward and laterally and are displaced into the vertical opening 16. The loops are now fanned away from the rotating drum surface 22 of pulley 19 and the belt 23 which passes over it in a clockwise direction. The comb 11 prevents the loops from underlying the cord 7 as it moves on to the belt 23 and permits a correct operation of the holding devices. The pivoted holding dogs 39 on the lower portion of belt 23, which is approaching the under side of pulley 19, then lie in closest proximity to the fixed dogs 37 and must be opened wider to receive the cord 7. The cam 50 of cam device 49 strikes the apex portion 44 of the pivoted dog 39 and opens it wide, thus enabling a section of cord to pass between the gripping elements 20 47 and 48 of the holding dogs (Fig. 3). Cam faces 50 and 51 parallel and adjoin the projecting flanges 20 and 21 respectively of the pulley 19, as illustrated by flanges 27 and 28 of pulley 24 (Fig. 1), and as a section of the belt 23 rotates with drum surface 22 the pivoted dogs remain unlocked until the belt leaves the pulley, whereupon the tensioned springs 42 rotate the pivoted dogs 39 in a clockwise direction to clamp the cord 7 between the anchoring surfaces 47 and 48. Furthermore, the resisting force exerted by the cord on the capstan serves to more securely wedge the cord between the holding dogs. The unsheathed cord loops 52 have previously been arranged to prevent them underlying the cord 7, which now rests flat on belt 23. The spaced dogs on rotating belt 23 between pulley 19 and the cam device 49 near pulley 24 serve to draw the cord from the braider. When a pivoted dog 39 reaches the lower cam device 49, it is released by cam 50 and maintained in that position by flanges 27 and 28 of pulley 24. The cord 7 is thus released and passes to a take-up reel, not shown. When a section of the belt 23 leaves the pulley 24, it departs from the camming influence of flange 28 and the pivoted dogs 39 are again urged in close proximity to the fixed dogs 37 by the springs 42. As the belt is endless and the holding members are uniformly spaced about it, the operation of the capstan in drawing cord is continuous.

Adjustment of the nuts 36 on the threaded portion 34 of the turnbuckle 29 will alter the distance between pulleys 19 and 24 in the well-known manner and serves to adjust the tension on belt 23 to compensate for variations in length.

While the preferred form of apparatus is herein disclosed and illustrated, it is to be understood the various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the claims.

What is claimed is:

1. In an apparatus for drawing a cord having lateral extensions, an endless driven belt, means positioned in advance of said belt to arrange the lateral extensions to prevent them underlying the cord on the belt, spaced cord holding means attached to said endless belt, means at the receiving end of said belt to open said cord holding means to admit the cord, and means at the discharge end of said belt to open said cord holding means to release the cord.

2. In an apparatus for drawing a cord having lateral extensions, an endless driven belt,

means for adjusting the tension of said belt, means positioned in advance of said belt to arrange the lateral extensions to prevent them underlying the cord on said belt, spaced cord holding means attached to said endless belt, means at the receiving end of said belt to open said cord holding means to admit the cord, and means at the discharge end of said belt to open said cord holding means to release the cord.

3. In an apparatus for drawing a braided cord having lateral extensions through a braider, an endless driven belt, a comb positioned in advance of said belt to arrange the extensions to prevent them underlying the cord on said belt, fixed holding dogs on said belt, pivoted, resiliently urged and normally closed holding dogs on said belt lying adjacent to said fixed dogs, a cam at the receiving end of said belt to open said pivoted dogs to admit the cord, and a cam at the discharge end of said belt to open said pivoted dogs to release the cord.

4. In an apparatus for drawing a braided cord having lateral extensions through a braider, a pair of flanged guide pulleys, an endless belt driven over said pulleys, an extension comb positioned in advance of said belt to arrange the extensions to prevent them underlying the cord on said belt, fixed holding dogs along one edge of said belt, pivoted, resiliently urged, normally closed holding dogs on said belt lying adjacent to said fixed dogs, a cam at the receiving end of said belt to open said pivoted dogs to admit the cord, and a cam at the discharge end of said belt to open said pivoted dogs to release the cord.

5. In a take-up mechanism, the combination with a machine for covering a cord having loops, of a comb to arrange the loops to one side of the cord.

6. In a take-up mechanism, the combination with a machine for covering cord having lateral extensions, of a device having a trough and a sloping surface in advance of said trough to arrange the loops downwardly and to one side of said device.

7. In combination with a machine for covering a cord having lateral extensions, means for drawing the cord through the machine, and means in advance of said drawing means to arrange the loops to a predetermined position.

8. In combination with a machine for braiding a cord having loops, an endless belt for drawing the cord through the braider, and a comb intermediate said braider and endless belt for arranging the loops to a predetermined position.

9. In combination with a machine for braiding a cord having loops, an endless belt for drawing the cord through the braider, and intermediate said braider and endless belt a comb having a trough and a sloping surface to arrange the loops to one side of the cord.

10. In combination with a take-up mechanism for cord having loops, a comb for arranging said loops to a predetermined position.

11. In combination with a take-up mechanism for cord having loops, a comb with a trough for arranging the loops to one side of said cord.

12. In combination with a take-up mechanism for cord having loops, a comb with a trough and a sloping surface in advance of said trough to arrange the loops downwardly and to one side of said cord.

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