

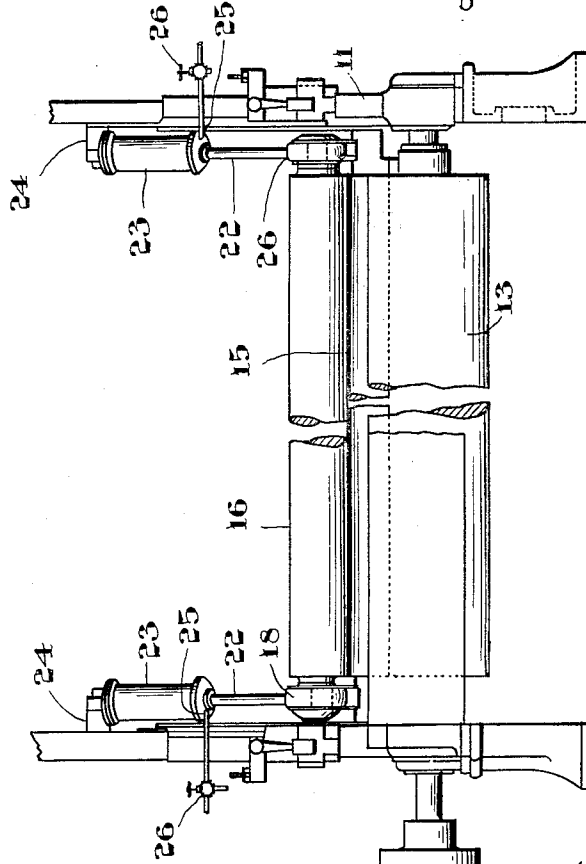
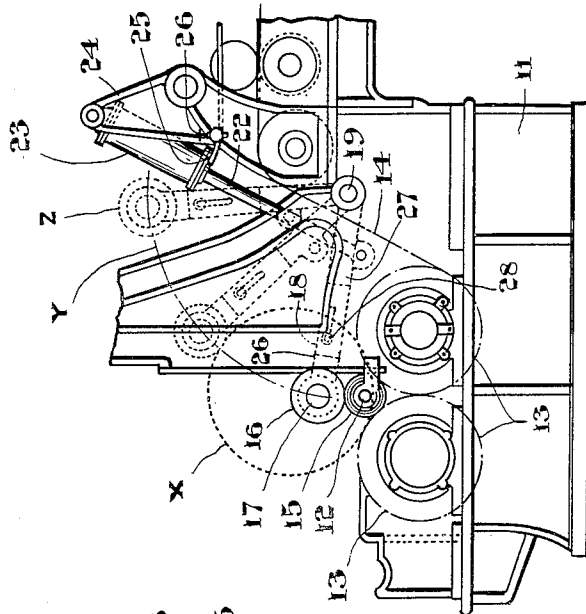
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RIDING ROLLER FOR PAPER MAKING MACHINES

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RIDING ROLLER FOR PAPER MAKING
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2 Claims. (Cl. 242—66)

This invention relates to paper winding machines and has particular reference to machines in which a riding roller is employed to provide the necessary traction between the paper roll and the winding drums at the beginning of the winding operation.

The riding roller is usually mounted to move in a vertical path directly in line with the longitudinal axis of the engaging paper roll. This arrangement interferes with the removal and repairing of the paper roll. It also necessitates the use of a complicated system of counter weights or cams for easing the pressure on the paper roll as the latter builds up in diameter.

An object of the present invention is to provide a riding roller which may be conveniently displaced in a lateral direction to a position clear of the paper roll so as not to interfere with removal or repairing of the roll.

Another object is to provide a riding roller which is supported in a novel manner so that, as the paper roll builds up in diameter, there is a gradual transference of the weight of the riding roller from the paper roll to the roller supporting means. This arrangement affords a very simple and effective method of easing the pressure on the paper roll as the latter increases in size.

A further object is to provide lifting means for laterally shifting the riding roller to an inoperative position clear of the paper roll.

Other objects and advantages of the invention, as well as the characteristic features of the embodiment herein disclosed, will be more readily understood from the following detailed description and accompanying drawing, in which,

Figure 1 is a fragmentary side elevation of a paper roll winding machine having our improved riding roller applied thereto.

Figure 2 is a view in front elevation of the structure shown in Fig. 1.

In these drawings, we have shown a paper winding machine of well known construction including a frame 11, a vertically movable core shaft 12 and the usual arrangement of winding drums 13. The paper web 14 is led between the drums 13 to the core shaft 12 on which it is wound into a roll 15 in the usual manner. A vertically movable riding roller 16 is arranged to bear on the paper roll 15 to provide the necessary traction between the paper roll and the winding drums 13 at the beginning of the roll winding operation.

The present invention is directed more particularly to the provision of an improved mount-

ing for the riding roller 16. In accordance with this invention, the riding roller is mounted on a shaft 17 rotatably journaled in the free ends of a pair of swinging arms 18. The opposite ends of arms 18 are pivotally supported on a shaft 19 suitably carried by the frame 11. The shaft 19 is located at one side of and parallel to the core shaft 12. As the paper roll 15 builds up in diameter, as indicated by the dotted line X, the riding roller 16 moves upwardly and laterally along an arcuate path indicated by the dotted line Y. During this arcuate movement of the riding roller, the point of contact between said roller and the paper roll 13 is gradually shifted in the direction of shaft 19 so that there is a gradual transference of the weight of the riding roller from the paper roll 13 to roller supporting shaft 19. This provides a very simple and effective method of easing the pressure on the paper roll as the latter increases in size.

After the paper roll builds up to a certain diameter, this easing of the pressure imposed by the riding roller is necessary to permit a somewhat looser winding of the outer convolutions of the roll in order to prevent breakage.

The mounting of the riding roller 16 to move in a lateral direction with respect to the paper roll 15 enables the riding roller to be conveniently displaced to an inoperative position at one side and clear of the paper roll when it is desired to repair or remove said roll. The inoperative position of the riding roller is indicated by dotted lines at Z and any suitable means may be provided for swinging the roller to this position. In the present instance, we have shown a fluid lift comprising a piston rod 22 having one terminal pivoted to one of the arms 18 and the other terminal secured to a piston (not shown) operating in a cylinder 23. The cylinder 23 is pivotally secured to any suitable form of bracket structure indicated at 24. When it is desired to swing the riding roller to the inoperative position indicated at X fluid is admitted to the lower portion of the cylinder and beneath the piston through a suitable connection 25. While, as previously stated, any other suitable means may be employed for swinging the riding roller to an inoperative position, the fluid lift shown in the present instance is of particular advantage in that, during the roll winding operation, it serves as a means for dampening vibration of the riding roller.

In order to control the passage of the air, steam or other fluid, to and from the cylinder 23, the pipe connection 25 is equipped with a three way valve 26. In one position of this valve, the fluid

passes from the source of supply into the cylinder, while in another position of the valve, the fluid is discharged from the cylinder to the atmosphere. The valve is in the latter position when the riding roller is in use and the cylinder and piston arrangement merely serve then to dampen vibrations of the riding roller during the winding operation.

The arms 18 may be made adjustable in length by forming each arm in two sections indicated at 26 and 27, these sections being adjustably secured together by a slot and pin connection 28.

While we have shown the riding roller 13 mounted for lateral movement by means of the swinging arms 18, it will be understood that we may provide any other form of roller support capable of functioning in an equivalent manner to accomplish the same results.

In applying the present invention to certain types of roll winding machines, it may be necessary to drive the riding roller 16 and this may be accomplished by gearing the roller supporting shaft 17 to any suitable form of drive mechanism.

Having thus fully described what is now considered to be the preferred embodiment of this invention, it will be understood that various mod-

ifications other than those specifically mentioned herein may be resorted to within the scope of the appended claims.

Having thus described our invention, what we claim is:

1. A winding machine of the character described including a riding roller and a pair of swinging arms supporting said roller and constraining it to move in an upwardly and laterally curving path as the said roller is displaced by contact with the wound material during the winding operation, each arm comprising complementary sections relatively adjustable to vary the effective length of the arm and means for securing said sections in their adjusted relation.

2. A winding machine comprising a frame, a pair of winding drums journaled therein, a pair of arms pivoted at one end to said frame, a riding roller carried between the free ends of said arms, a bracket carried by said frame, a cylinder pivoted to said bracket and a piston rod having one end pivotally connected to one of said arms between the riding roller and an arm pivot and having its opposite end connected to a piston operating in said cylinder.

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