July 27, 1965 H. C. MORROW 3,196,701

RUBBER COVERED ROLL

Filed Oct. 10, 1963

FIG. 1.

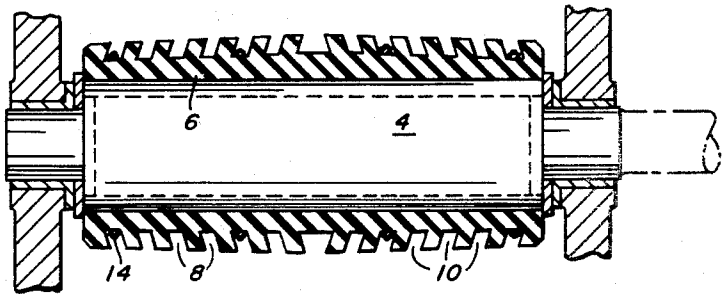


FIG. 2.

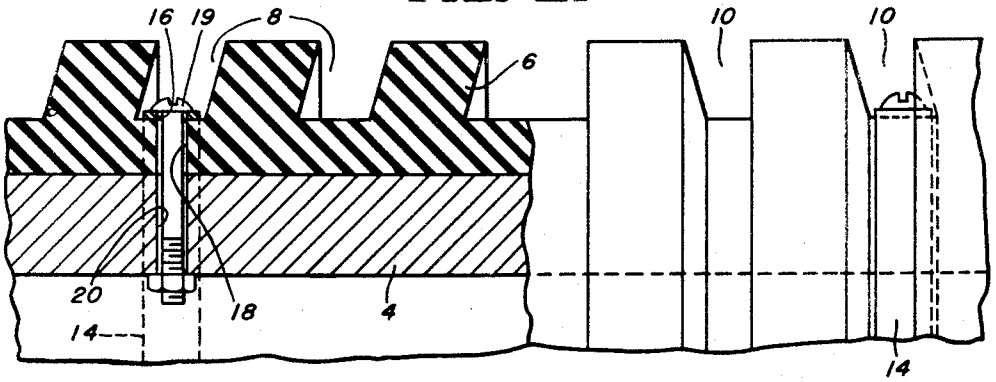


FIG. 5.

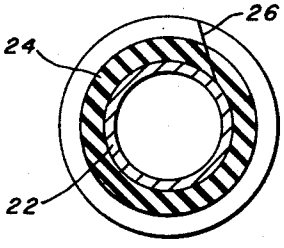


FIG. 3.

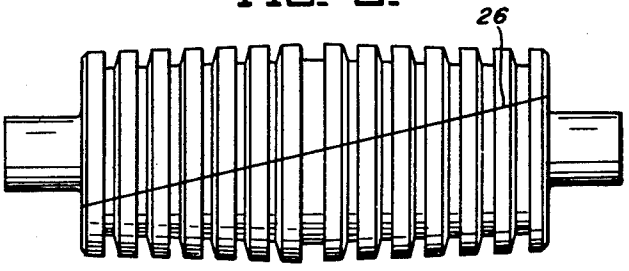
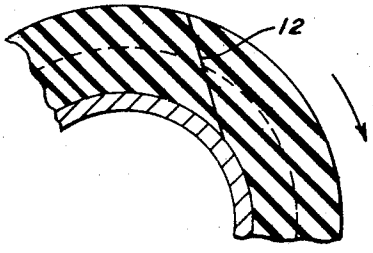


FIG. 4.



INVENTOR.
HARRY C. MORROW
By Donald G. Dalton
Attorney

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3,196,701

RUBBER COVERED ROLL

Harry C. Morrow, Bethel Park, Pa., assignor to United States Steel Corporation, a corporation of New Jersey

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7 Claims. (Cl. 74—230.7)

This invention relates to a rubber covered roll and particularly to a slotted centering roll such as shown in Lorig Patent No. 2,592,581 dated April 15, 1952. Rubber covered rolls are often used in belted conveying systems and in other locations where it may be very difficult and expensive to remove the rolls and ship them to a rubber company for recovering. Also, it is expensive to stock spare rolls.

It is therefore an object of my invention to provide a rubber covered roll in which the rubber covering can be readily removed and replaced without the necessity of shipping it to a rubber company.

This and other objects will be more apparent after referring to the following specification and attached drawings, in which:

FIGURE 1 is a cross sectional view of the roll of my invention;

FIGURE 2 is an enlarged view, partly in section, of a portion of the roll of FIGURE 1;

FIGURE 3 is an elevation of the roll of FIGURE 1;

FIGURE 4 is a transverse fragmentary sectional view of the roll of FIGURE 1 on an enlarged scale; and

FIGURE 5 is a transverse sectional view showing a step in the manufacture of the roll.

Referring more particularly to the drawings, reference numeral **4** indicates a roll shell. A rubber covering **6** is provided over the shell **4** and as shown has a uniform outer diameter. However, the center part of the roll may have a greater diameter than its ends. A plurality of slots **8** and **10** are provided in the covering **6**, the slots **8** being slanted in the opposite direction from the slots **10**. In each case the slots extend from the surface of the roll toward its axis away from the transverse center of the roll in the same manner as the slots of the roll of the Lorig patent mentioned above. The slots **8** and **10** are preferably wider than the slots normally provided and the bottom of the slots are parallel to the axis of the roll. The rubber covering **6** has a lap joint **12** therein extending at an angle transversely across the roll. The arrangement of the joint **12** is preferably as shown in FIGURE 4 where the arrow indicates the direction of rotation of the roll. Suitable bonding material, not shown, secures the rubber covering **6** to the roll shell **4** and also secures the ends of the rubber covering together at the joint **12**. A band **14** preferably made of steel extends around the periphery of the roll within at least some of the slots **8** and **10**. The band **14** bears against the bottom of its associated slot and a hole **16** is preferably provided at each end of the band in alignment with a hole **18** through the rubber covering **4**. A screw **19** extends through the holes **16** and **18** and through a hole **20** in the steel shell **4** so as to provide additional protection against the covering slipping on the shell. Other fasteners such as bolts and studs may be used in place of the screw **19** and the term screw as used in the claims is intended to include such other fastening devices. If desired the ends of the band may be secured together with a strap binder of a usual type and the screws omitted.

In making the roll of my invention I provide a mandrel **22** having the same diameter as the shell **4** and a length at least as great as the shell **4**. A rubber covering **24** is placed around the mandrel **22** to the desired thickness and

the rubber vulcanized, after which the surface of the rubber is machined to the desired contour. The peripheral solts **8** and **10** are then provided in the rubber to a depth less than the thickness of the rubber. The steps so far described are those used in covering a roll shell when it is shipped to the rubber manufacturer. The mandrel **22** may be coated with an adhesive which will permit ready removal of the finished rubber covering after it has been vulcanized and machined. A slit **26** is then cut into the rubber across the full length thereof preferably at an angle of about 15°. The rubber covering is then shipped to the customer who removes the old covering from its steel shell and places the new covering around the shell **4**. A bonding material such as rubber cement is applied to the shell **4** and/or inner surface of the covering **6** and also to the ends of the covering formed by the slit **26**. The steel bands **14** are then applied and the roll is ready for operation.

While one embodiment of my invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. A rotatable roll for controlling movement of elongated objects passing thereover comprising a metal shell, a preformed rubber covering surrounding the metal shell, said covering having spaced apart peripheral slots therein, said covering having a lap joint therein extending at an angle transversely across the roll, and means for fastening said covering to said shell.

2. A rotatable roll according to claim **1** in which the slots extend from the surface of the roll toward the axis of the roll away from the transverse center of the roll.

3. A rotatable roll for controlling movement of elongated objects passing thereover comprising a metal shell, a preformed rubber covering surrounding said metal shell, said covering having spaced apart peripheral slots therein, and a peripheral band in at least some of said slots bearing against the bottom thereof.

4. A rotatable roll according to claim **3** in which the slots extend from the surface of the roll toward the axis of the roll away from the transverse center of the roll.

5. A rotatable roll according to claim **3** including a fastener extending through said band and said covering into said shell.

6. A rotatable roll for controlling movement of elongated objects passing thereover comprising a metal shell, a preformed rubber covering surrounding said metal shell, said covering having spaced apart peripheral slots therein, said covering having a lap joint therein extending at an angle transversely across the roll, a peripheral band in at least some of said slots bearing against the bottom thereof, a fastener extending through said band and said covering into said shell, and means bonding said covering to said shell.

7. A rotatable roll according to claim **6** in which the slots extend from the surface of the roll toward the axis of the roll away from the transverse center of the roll.

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DON A. WAITE, *Primary Examiner.*