Dec. 30, 1924. 1,520,918

E. E. WAITE

COP OF ROVING

Original Filed April 6, 1922

Fig. 1.

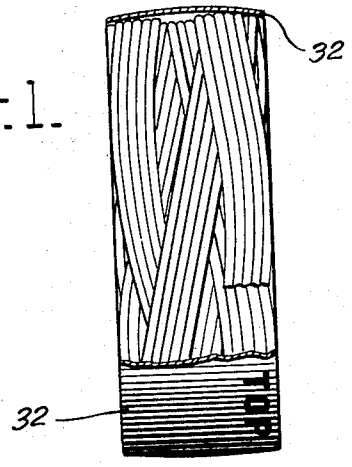


Fig. 2.

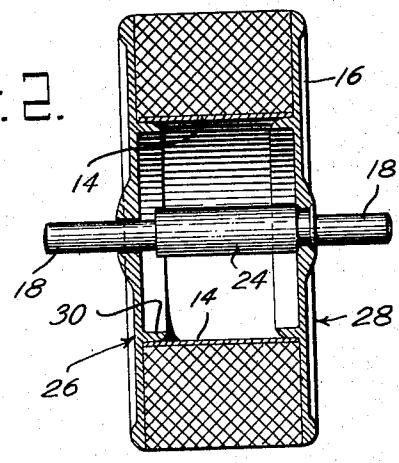


Fig. 3.

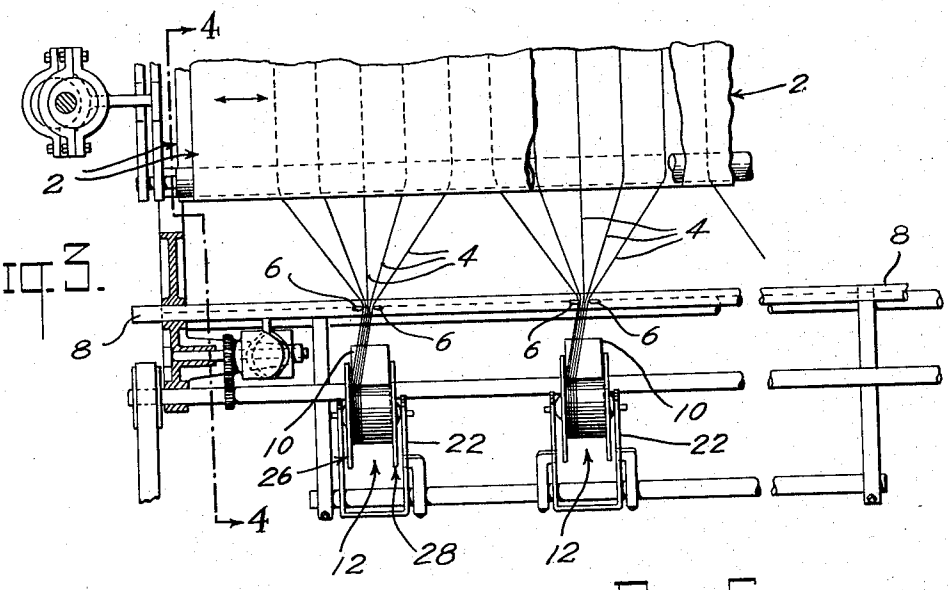


Fig. 4.

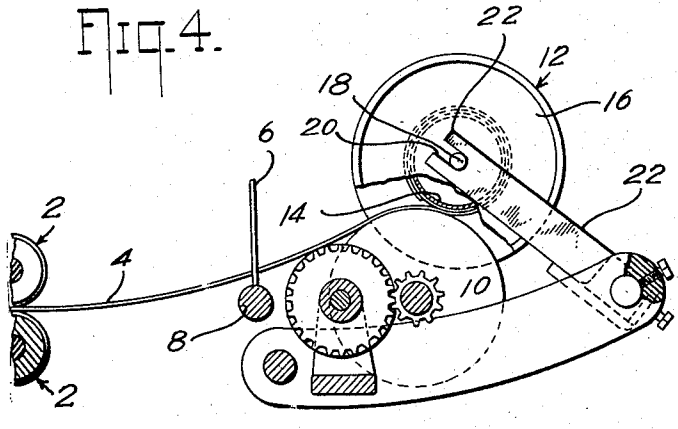
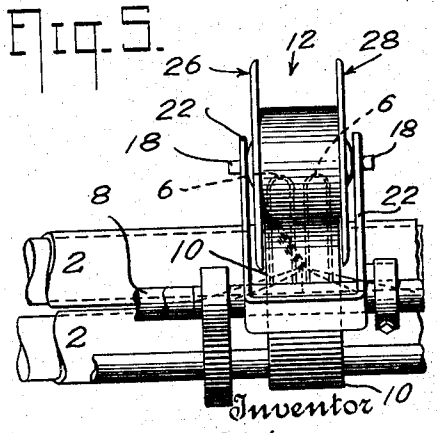


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWIN E. WAITE, OF FRAMINGHAM, MASSACHUSETTS.

COP OF ROVING.

Original application filed April 6, 1922, Serial No. 550,217. Divided and this application filed February 12, 1923. Serial No. 618,752.

To all whom it may concern:

Be it known that I, EDWIN E. WAITE, a citizen of the United States, residing at Framingham, county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Cops of Roving, of which the following is a full, clear, and exact description.

The present invention relates to cops of roving, and has special reference to cops of roving of asbestos fibre.

An object of the invention is to provide a novel and improved cop of this character which is capable of sustaining a considerable pull without breaking or otherwise injuring the roving even though asbestos roving of short fibre is used.

Another object of the invention is to provide a novel and improved cop of this character which is so formed as to be self-sustaining.

A further object of the invention is to provide a novel and improved cop of this character which may be conveniently shipped without danger of injury thereto, and which is particularly adapted for use in machines for covering wire or the like with roving.

The features of the invention will be clearly understood from the following description and accompanying drawings, in which,—

Figure 1 is a side elevation of a cop embodying my invention in its preferred form, a protective covering for the cop being shown partly broken away;

Fig. 2 is a detail longitudinal sectional view, partly in elevation, of a spool which is employed in a machine that may be used in forming the cop, with the cop shown in section on the spool;

Fig. 3 is a sectional plan view of a portion of this machine;

Fig. 4 is a sectional view, on an enlarged scale and partly broken away, taken on the line 4—4 of Fig. 3; and

Fig. 5 is a front elevation of the portion of the machine illustrated in Fig. 4.

My improved cop is particularly adapted to be formed by the machine and in accordance with the method described and claimed in my copending application, Ser. No. 550,217, filed April 6, 1922, of which the present application is a division. While this machine and method forms no part of the present invention, in order to assist in understanding the construction of my improved cop a portion of this machine is illustrated in the drawings and will be briefly described. As shown the machine is provided with a pair of rub belts or aprons 2, to which separate strips of fibre are delivered by suitable mechanism from a carding engine, the rub aprons acting in the usual manner to condense the strips into separate rovings 4. As the rovings are delivered from the rub aprons they are threaded in groups of five between vertical guide pins 6 mounted on a guide bar 8, and are then passed over a portion of the peripheral surface of rolls 10 which are driven in a clockwise direction, viewing Fig. 4, the rovings of each group being arranged side by side so as to form a flat strand. The rolls 10 deliver the groups of rovings to cop spools or spindles 12 supported by the rolls 10 and driven thereby. Each cop spool 12 is provided with a shank or cop tube 14 of substantially the width of the associated delivery roll 10 and is further provided with annular flanges 16 between which the delivery roll extends. With this construction it will be apparent that when the delivery rolls 10 are rotated, the cop spools 12 will be rotated by frictional contact therewith, and the flat strands of roving will be wound on the spools. In this machine the flat strands are wound on the spools in crossed helices to form self-sustaining cops. To provide for this the guide pin carrying bar 8 is reciprocated longitudinally in such timed relation to the rotation of the delivery rolls 10 as to cause each pair of guide pins 6 to deflect the strand of roving from one side of the roll to the other during the rotation of the roll, the guide bar being held at the limit of each throw a sufficient length of time to permit a portion of the strand coinciding with the side of the roll to be delivered to the cop so that the cop will be built up in such a manner as to completely fill the space between the cheeks of the flanges of the cop spool. The flanges 16 prevent the ends of the cops from sloughing off during the winding.

Each cop spool 12 is provided with trunnions 18 which are removably received in slots 20 in the upper ends of upwardly inclined side arms of yokes 22. The yokes 22 are pivotally mounted at their lower ends

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so that the cop spools are separately held in proper frictional contact with the delivery rolls 10 by gravity, and the spools may be easily removed and replaced. The trunnions 18 of each cop spool 12 are formed on the ends of a supporting pin or spindle 24 on which are mounted two disks 26 and 28, the disk 26 being removable from the spindle and the disk 28 being fixed on the spindle. The disks 26 and 28 are each provided with inwardly projecting annular flanges or ribs 30 on which the ends of the cop core or tube 14 is mounted, the cop tube being held on the flanges, and the disk 26 being held in position by frictional contact between the tube and the flanges. The portions of the disks 26 and 28 outside of the cop tube 14 constitute the heads 16 of the spool.

When the cop spool has been filled and removed from the machine, as above described, the cop with its tube 14 may be easily removed from the spool by removing the disk 26 from the spindle 24.

In order to prevent the rovings from unwinding and to hold the leading end of the rovings in position on the tube and to prevent injury thereto after the cop is removed from the spool, a band of paper or other protective material 32 is pasted about the peripheral surface of the cop either before or after the cop is removed from the spool.

When the cop is to be used in a wire covering machine such as the one illustrated and described in applicant's copending application, Ser. No. 550,216, filed April 6, 1922, in which, in setting up the machine, a plurality of cops are placed on the cop support of the machine and are successively moved into position to be used, it is necessary that the cop should be right side up on the support and is therefore important that the operator shall be enabled to determine, without removing the paper band, the proper position with relation to its ends and the direction in which it is wound that the cop should be initially placed in the machine. To provide for this the word "Top" or other word or mark is placed on the band at a point adjacent the edge of the cop which should be uppermost when the cop is placed in the machine, as indicated in Fig. 1. The beginning of this word indicates the direction of winding with relation to the ends of the cop. When the cop is right side up the head of the word will be to the left, the word will be right side up and be near the top and any-one of these facts will indicate that the cop is properly positioned.

One of the advantages of a cop thus formed is that it can be unwound by pulling simultaneously on a plurality of rovings, so that if the strand from which the cop is formed is made up of five rovings, as above described, a pull can be safely applied which is five times greater than if the cop were made up of but one roving. This is of particular advantage in connection with the use of soft rovings of short asbestos fibre in which the weakness of the individual rovings make manipulation of a single roving unsatisfactory if not impossible in commercial application such as in covering wire and the like. By forming a cop in accordance with the present invention, short fibre asbestos may be used without backing or supporting thread as heretofore has been found to be necessary. The strand made up of a plurality of rovings, on account of its strength, is also of great advantage in forming cops of asbestos roving of long fibre as well as of short fibre since cops as heretofore formed of asbestos roving of either short or long fibre is unwound with difficulty in a roving applying machine.

As will be evident to those skilled in the art my invention permits of various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. A package of roving comprising a flat strand composed of a plurality of rovings of short fibre asbestos arranged side by side and wound in crossed helices into a cop, the individual rovings being too weak for satisfactory manipulation.

2. A package of roving comprising a core, and a flat strand composed of a plurality of rovings of fibre arranged side by side, and wound on the core in crossed helices to form a self-sustaining cop, the individual rovings being too weak for satisfactory manipulation.

3. A package of roving comprising a flat strand composed of a plurality of rovings of fibre arranged side by side and wound in crossed helices into a cop, the individual rovings being too weak for satisfactory manipulation, and a band of paper or similar material covering the peripheral surface of the cop and having a mark thereon to indicate the direction of the winding with relation to the ends of the cop.

EDWIN E. WAITE.

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