March 3, 1959 J. T. D. SPENCE 2,875,561

METHOD OF PACKAGING COILS OF LONGITUDINALLY EXTENDING MATERIAL

Filed June 14, 1956

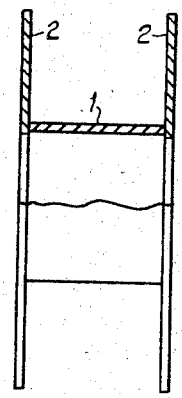


FIG. 1

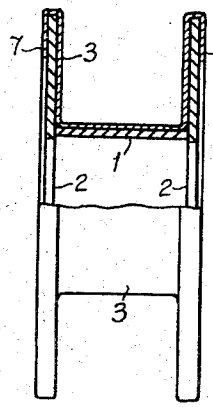


FIG. 2

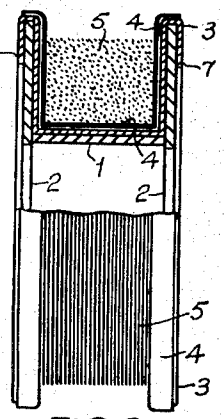


FIG. 3

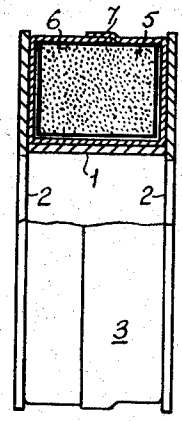


FIG. 4

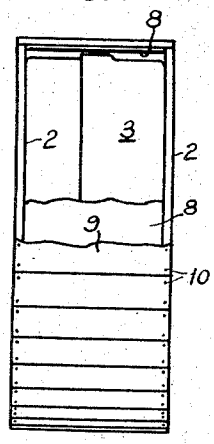


FIG. 5

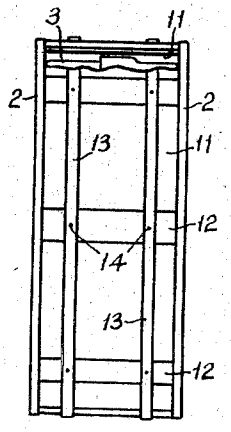


FIG. 6

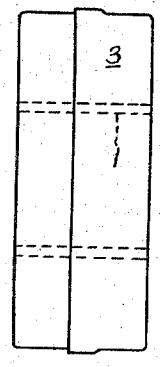


FIG. 7

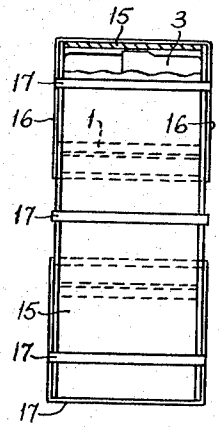


FIG. 8

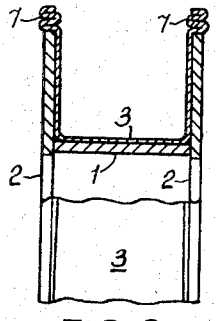


FIG. 9

Inventor:
John Taynton Davy Spence

By Brown, Jackson, Boettcher & Dienner Atty's

United States Patent Office 2,875,561
Patented Mar. 3, 1959

2,875,561

METHOD OF PACKAGING COILS OF LONGITUDINALLY EXTENDING MATERIAL

John Taynton Davy Spence, Kidderminster, England, assignor to The National Standard Company Limited, Kidderminster, England, a British company

Application June 14, 1956, Serial No. 591,312

Claims priority, application Great Britain June 21, 1955

4 Claims. (Cl. 53—13)

The present invention relates to a method of packaging coils of wire, thread, yarn and the like longitudinally extending material which, for the sake of simplicity in the ensuing description and claims, will be referred to as wire. In particular the invention relates to a method of packaging wire on a reel, bobbin or the like flanged receptacle which, for the sake of simplicity, will be referred to hereinafter as a reel.

It is difficult to protect coils of wire against atmospheric action, particularly in the case of coils which have to be transported by sea. In the case of coils of wire wound on reels it is possible to envelop the entire reel in an airtight or waterproof covering but this method has the disadvantage that the covering is very vulnerable to damage during transportation and handling of the reel. If the covering should become torn or punctured the wire on the reel may still suffer deterioration through atmospheric action.

The object of the present invention is a method of packaging coils of wire which results in an efficient protection of the wire against atmospheric action.

According to the invention a method of packaging wire on a reel comprises the steps of placing a sleeve of elastic airtight or waterproof material over the reel so that the central portion of the sleeve fits snugly around the core of the reel and the end portions of the sleeve are stretched across the internal surfaces of the reel flanges, winding the wire on to the sleeved reel, folding the two ends of said sleeve towards each other over the outer layer of wire on the reel and finally providing an airtight or waterproof seal between the ends of the sleeve.

In order to protect the airtight or waterproof material against chafing by the wire during transportation of the reel, the said sleeve may be covered with a paper lining along the core of the reel and over the internal surfaces of the flanges before the wire is wound on to the reel. When the wire is wound on, a further layer of paper may be placed over the wound wire before the two ends of the sleeve are folded over the wire. Wooden battens or the like may be employed to protect the folded sleeve from damage.

The above described procedure may also be used for packaging wire wound on to a reel having removable flanges or on to a core between side plates serving as temporary flanges for the core. In these cases, after the ends of the sleeve have been folded over the wire, the removable reel flanges or the side plates serving as temporary flanges are removed and the sides of the wire package protected by means of sheets of cardboard, wood or the like material held in position by any suitable means, for example metal bands.

The invention will now be described in greater detail with reference to the accompanying drawing, in which

Figure 1 is a partly sectioned end view of a reel,

Figures 2 to 4 are partly sectioned end views of the reel of Figure 1 showing three stages in the packaging of wire on the reel,

Figures 5 and 6 are end views, partly broken away, of two different types of reel containing wire packaged by the method according to the invention,

Figures 7 and 8 are two views showing two stages in the packaging of wire on a reel with removable flanges, and

Figure 9 is a partly sectioned end view of part of a reel, similar to Figure 2, showing an alternative step in the process according to the invention.

Referring to Figures 1 to 4, these figures show a reel consisting of a cylindrical core **1** and two circular flanges **2**. The first stage of the packaging method illustrated by these figures consists in stretching a cylindrical sleeve **3** of thin rubber over the reel so that it is positioned on the reel as shown in Figure 2, i. e. with the central portion of the sleeve fitting snugly around the core **1** and with the end portions of the sleeve stretched across the internal surfaces of the flanges **2**, over the edges of the latter and folded over the external surface of the flanges.

The external surface of that part of the sleeve lying on the core **1** and on the internal surfaces of the flanges **2** is covered with one or more layers **4** of kraft paper and wire **5** is then wound on to the reel.

When the wire has been wound on to the reel one or more layers **6** of kraft paper are placed on the outer layer of wire and the two ends **7** of the sleeve **3** are folded over the paper layers **6** as shown in Figure 4. The sleeve **3** has such a length that the ends **7** overlap one another. Since the ends of the sleeve are under considerable tension in the peripheral direction of the sleeve when they are folded over the wire on the reel, overlapping of the ends **7** may be sufficient to provide an adequate seal between the ends of the sleeve. We prefer, however, to stick the overlapped ends **7** together with a suitable adhesive so that a watertight joint is ensured between the sleeve ends. In Figure 4 it will be seen that the joint between the overlapped ends **7** of the sleeve is located approximately mid-way between the flanges **2**. It is not, of course, essential that the joint should be so located. If desired the joint may be closer to one of the flanges **2** than the other.

The dimensions of the sleeve **3** are not critical since for a given size of reel the dimensions of the sleeve can vary through quite a wide range. We have found, however, that for a reel having a core diameter of 16.5", a core length of 9.0", flange diameters of 30.0" and a flange thickness of from 0.5 to 2.0", a particularly suitable sleeve has the following dimensions:

	Inches
Length	34.0
Diameter	16.5
Thickness	from 0.025 to 0.027

(The above dimensions refer to the unstretched state of the sleeve.)

Figure 5 shows how the reel of Figure 4 may be finally packaged in the case of a wooden reel. In Figure 5 a further layer **8** of kraft paper has been wrapped around the outer surface of the overlapped sleeve **3** and wooden battens **9** have been secured across the flanges **2** by means of nails or screws **10**.

Figure 6 shows how the reel of Figure 4 may be finally packaged in the case of a reel with metallic flanges **2**. In Figure 6 a further layer **11** of kraft paper has been wrapped around the outer surface of the overlapped sleeve **3** and wooden battens **12** have been forced between the flanges **2**. Metallic bands **13** secured to the battens **12** by means of nails or screws **14** hold the battens in position.

Figures 7 and 8 show the final stages in the packaging of the reel of Figure 4 in the case where the latter is of the type comprising removable flanges or where the flanges **2** are side plates serving as temporary flanges.

Figure 7 shows the wire package of Figure 4 after the flanges 2 have been removed from the core 1. Figure 8 shows how one or more layers 15 of stout paper or cardboard have been placed around the peripheral edge of the package and one or more annular discs 16 of cardboard, wood or the like material have been placed at the sides of the package, the layers 15 and discs 16 being held in position by means of metallic bands 17 arranged at intervals around the package, these bands passing through the core 1.

Figure 9 shows how the step illustrated in Figure 2 may be varied. In Figure 9 the ends 7 of the sleeve 3 have not been folded over the external surfaces of the flanges 2 but have been folded backwards and forwards over the peripheral edge of the flanges. It is of no importance how the ends 7 of the sleeve 3 are dealt with at this stage of the packaging process so long as they do not interfere with the process of winding the wire on to the reel.

The invention is not, of course, limited to the use of sleeves and tubes made of natural or synthetic rubber. The sleeve 3 described above may be made of any suitable elastic airtight or waterproof material other than rubber, for example plasticised polyvinyl chloride.

I claim:

1. A method of packaging wire on a reel comprising the steps of placing a one piece tubular sleeve or elastic airtight material over the reel so that the central portion of the sleeve fits snugly around the core of the reel and the end portions of the sleeve are stretched across the internal surfaces of the reel flanges, winding the wire on to the sleeved reel, folding the two ends of said sleeve towards each other into overlapping relation over the outer layer of the wire on the reel and finally providing an airtight seal between the overlapped ends of the sleeve.

2. A method of packaging wire on a reel comprising the steps of placing a one piece tubular sleeve of elastic waterproof material over the reel so that the central portion of the sleeve fits snugly around the core of the reel and the end portions of the sleeve are stretched across the internal surfaces of the reel flanges, winding the wire

on to the sleeved reel, folding the two ends of said sleeve towards each other into overlapping relation over the outer layer of the wire on the reel and finally providing a waterproof seal between the overlapped ends of the sleeve.

3. A method of packaging wire on a reel comprising the steps of placing a one piece tubular sleeve of airtight material over the reel so that the central portion of the sleeve fits snugly around the core of the reel and the end portions of the sleeve are stretched across the internal surfaces of the reel flanges, lining the sleeve with a layer of protective material, such as paper, winding the wire on to the sleeved and lined reel, placing a sheet of protective material, such as paper, over the outer layer of wire wound on the reel, folding the two ends of said sleeve towards each other into overlapping relation over said sheet of protective material and finally providing an airtight seal between the overlapped ends of the sleeve.

4. A method of packaging wire on a reel comprising the steps of placing a one piece tubular sleeve of elastic waterproof material over the reel so that the central portion of the sleeve fits snugly around the core of the reel and the end portions of the sleeve are stretched across the internal surfaces of the reel flanges, lining the sleeve with a layer of protective material, such as paper, winding the wire on to the sleeved and lined reel, placing a sheet of protective material, such as paper, over the outer layer of wire wound on the reel, folding the two ends of said sleeve towards each other into overlapping relation over said sheet of protective material and finally providing a waterproof seal between the overlapped ends of the sleeve.

References Cited in the file of this patent

UNITED STATES PATENTS

1,485,289	Peterson	Feb. 26, 1924
2,118,924	Henderson	Nov. 14, 1935
2,457,094	Smith	Feb. 24, 1945
2,615,606	McDermott	Oct. 28, 1952
2,658,263	Scott	Nov. 10, 1953