Sept. 27, 1949. T. R. POLGLASE ET AL 2,482,869

SHIPPING PACKAGE FOR HEAVY SPOOLS

Filed June 16, 1948

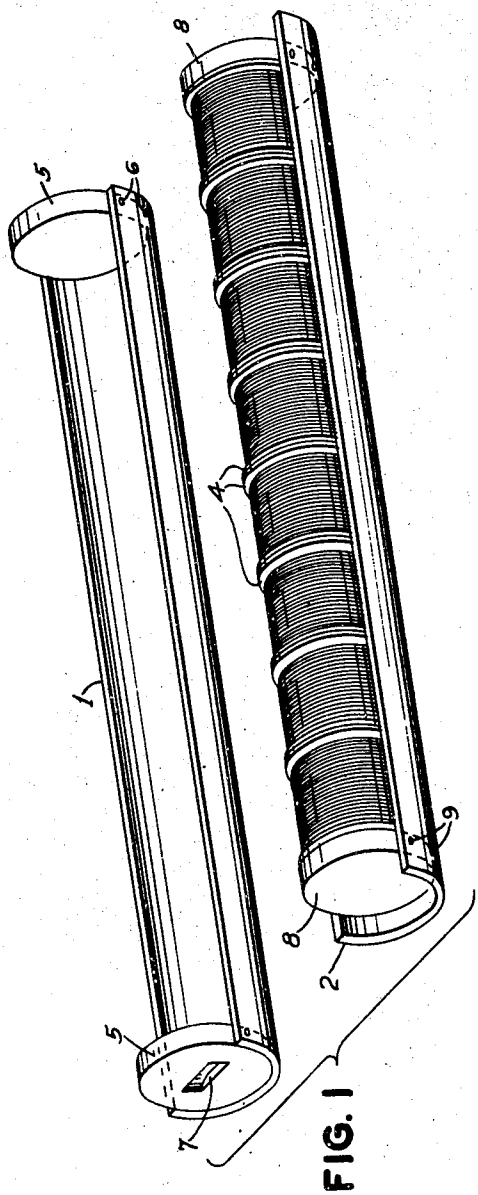


FIG. 1

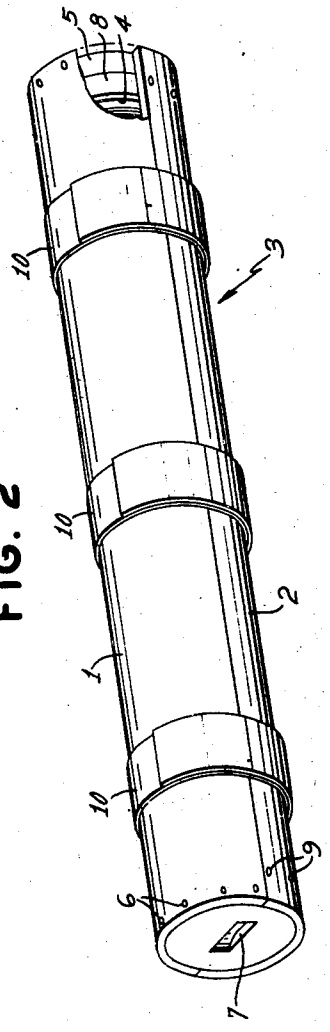


FIG. 2

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SHIPPING PACKAGE FOR HEAVY SPOOLS

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Application June 16, 1948, Serial No. 33,276

1 Claim. (Cl. 206—59)

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This invention relates to shipping rather heavy spools, such as spools of magnet wire, and provides an improved shipping package therefor.

It has been the practice heretofore to ship spools of magnet wire in rectangular wooden packing cases. The use of such cases has been necessary to provide adequate protection for the wire, especially very fine wire, and to withstand damage in transit on account of the weight of the wire. Such cases are themselves quite heavy, however, and add materially to the shipping costs. Moreover, they must be accurately made to close dimensional tolerances so that spools of wire therein will not shift in position, causing the flange of one spool to strike against the wire, on another spool and damage it. Ordinary cylindrical mailing or shipping tubes provide for optimum arrangement of the spools in the package, because the spools abut end to end and it is impossible for the flanges of one spool to damage the wire on an adjacent spool. The shipping tubes heretofore proposed and available have been unsatisfactory, however, because if loaded from the end they are very difficult to unload (especially if they fit closely enough about the rather heavy spools to prevent them from rattling and damaging the tube), and if split longitudinally to facilitate loading and unloading the end closures have been too weak for safe shipping use.

We have devised an improved shipping package for heavy spools of magnet wire or the like which overcomes these deficiencies of heretofore known shipping tubes, and which has proved very satisfactory in use. The new shipping package comprises a pair of rigid mating semicylinders each having an inside diameter substantially equal to the diameter of the spools and which when assembled together form a cylinder which fits snugly about the spools. A pair of full circular rigid end closures are secured to one of these semicylinders at its ends. A second pair of similar full circular end closures is secured to the other semicylinder adjacent its ends, but each one is spaced inwardly from the semicylinder end by a distance equal to the thickness of the end closures of the first pair. Thus when the semicylinders are assembled together, the end closures of one ssmicylinder overlie the end closures of the other semicylinder and reinforce them at just the place where such reinforcement is most needed.

Following is a more detailed description of the new shipping package, in which reference is made to

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Fig. 1, which shows the new shipping package opened for loading or unloading, and

Fig. 2, which shows the new shipping package closed for shipment.

The shipping package comprises a mating pair of rigid semicylinders 1 and 2 which when assembled together form a cylinder 3 for enclosing a series of spools 4 positioned end to end. The inside diameter of the semicylinders is just about equal to the diameter of the flanges of the spools, so that when the semicylinders are assembled together the spools are held snugly in place. The semicylinders may be of any desired material, such as vulcanized or plastic-impregnated fiber, but advantageously are made of very heavy paper board (say one-quarter inch thick) for spools up to about six inches or so in diameter.

One of the semicylinders 1 is provided at its extreme ends with a pair of rigid, full circular end closures 5. These end closures are of the same diameter as the inside of the semicylinder, and are secured in place by nails 6, or by an adhesive, or by any other strong fastening means. The end closures advantageously are made of ordinary lumber or plywood, but other materials, such as molded plastic material, also can be employed, and they may be provided with finger-grip recesses 7.

The other semicylinder 2 is provided with a second pair of full circular end closures 8, which also are rigid and of the same inside diameter as the semicylinder. These end closures 8, instead of being at the extremities of the semicylinder 2, are spaced inwardly therefrom a distance about equal to the thickness of the end closures 5 on the first semicylinder. They are secured in place by nails 9 or other suitable fastening means.

When the two semicylinders are assembled together, the end closures 5 of the first semicylinder overlie and reinforce the end closures 8 of the second semicylinder. Reinforcement of each end closure 5 is needed particularly against the thrust of the heavy spools along the half-circle periphery that projects above the semicylinders, where these end closures are necessarily unsupported, and it is here that the end closures 5 best provide such reinforcement. In a similar manner the end closures 5 reinforce the unsupported half of the outermost end closures 8 against any inward blow to which they might be subjected in transit, such as if the tube is accidentally dropped while being handled. To insure such reinforcement, the distance between the outer faces of the inwardly spaced pair of end closures 8 should

be just about equal to the distance between the inner faces of the other pair of end closures 5, so that these faces are substantially in contact when the two semicylinders are assembled together.

The manner in which the inwardly spaced end closures 8 just fit between the other end closures 5 when the semicylinders are assembled together not only provides for mutual reinforcement of the end closures but also locates the two semicylinders in their proper relative positions and holds them against relative longitudinal movement. The assembled tube then is easily and securely held closed about the spools within it by several bindings of gummed paper tape 10.

The new shipping tube is easily made to fit very snugly about the heavy spools within it and to hold them tightly so that they are not free to shift position and deliver damaging blows to the inside of the tube. The spool flanges themselves reinforce the semicylinders against damage from blows delivered to the exterior of the package. Thus the tube and its contents cooperate to protect each other, with the result that a single tube may be used repeatedly for shipping full spools to the customer and returning empty spools to the wire manufacturer. After prolonged use, it is generally the ends of the tube that become damaged (even though this is minimized by the mutual reinforcement the end closures furnish each other), but damage to the ends does not necessitate discarding the tube. A tube originally made for shipping, say, eight spools can be reconditioned by cutting off the damaged ends and re-locating or replacing the end closures, thus making it almost as good as new for shipping say, six, spools.

It is very easy to load the new shipping package, and more particularly is easy to unload, even when the closed tube tightly grips the spool flanges. When the package is opened, all the spools are immediately accessible for removal and inspection. The package is considerably less expensive to manufacture than the packing cases heretofore used, and its light weight reduces shipping costs. Thus its use not only affords improved protection for the spools during shipping and increased convenience to the shipper and receiver, but leads to important economies as well.

We claim:

A shipping package for heavy spools comprising a pair of rigid mating semicylinders each having an inside diameter substantially equal to the diameter of the spools and which when assembled together form a cylinder which fits snugly about the spools, a pair of full circular rigid end closures of a diameter equal to that of the semicylinders secured to one of said semi-cylinders at each end thereof, and a second pair of similar full circular rigid end closures secured to the other of said semicylinders adjacent each end thereof, the end closures of said second pair being each shaped from the adjacent end of the semicylinder to which it is secured by a distance substantially equal to the thickness of the end closures of the first pair, whereby when the two semicylinders are assembled together the end closures of one semicylinder overlie and reinforce the end closures of the other semicylinder.

THOMAS R. POLGLASE.
HENRY J. HOEBEKE.

No references cited.

Certificate of Correction

Patent No. 2,482,869 September 27, 1949

THOMAS R. POLGLASE ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 4, line 27, for the word "shaped" read *spaced*;

and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of January, A. D. 1950.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.