

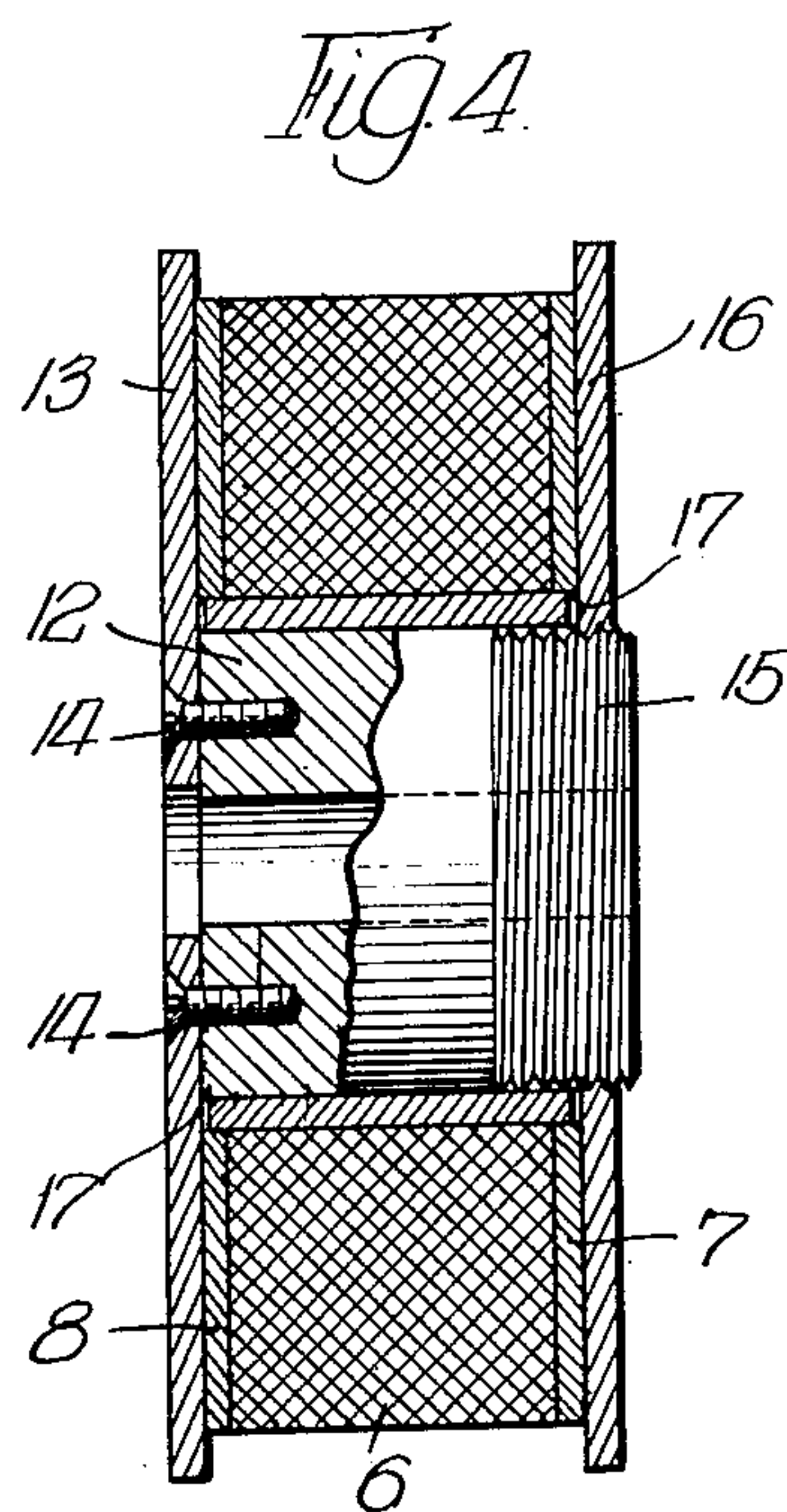
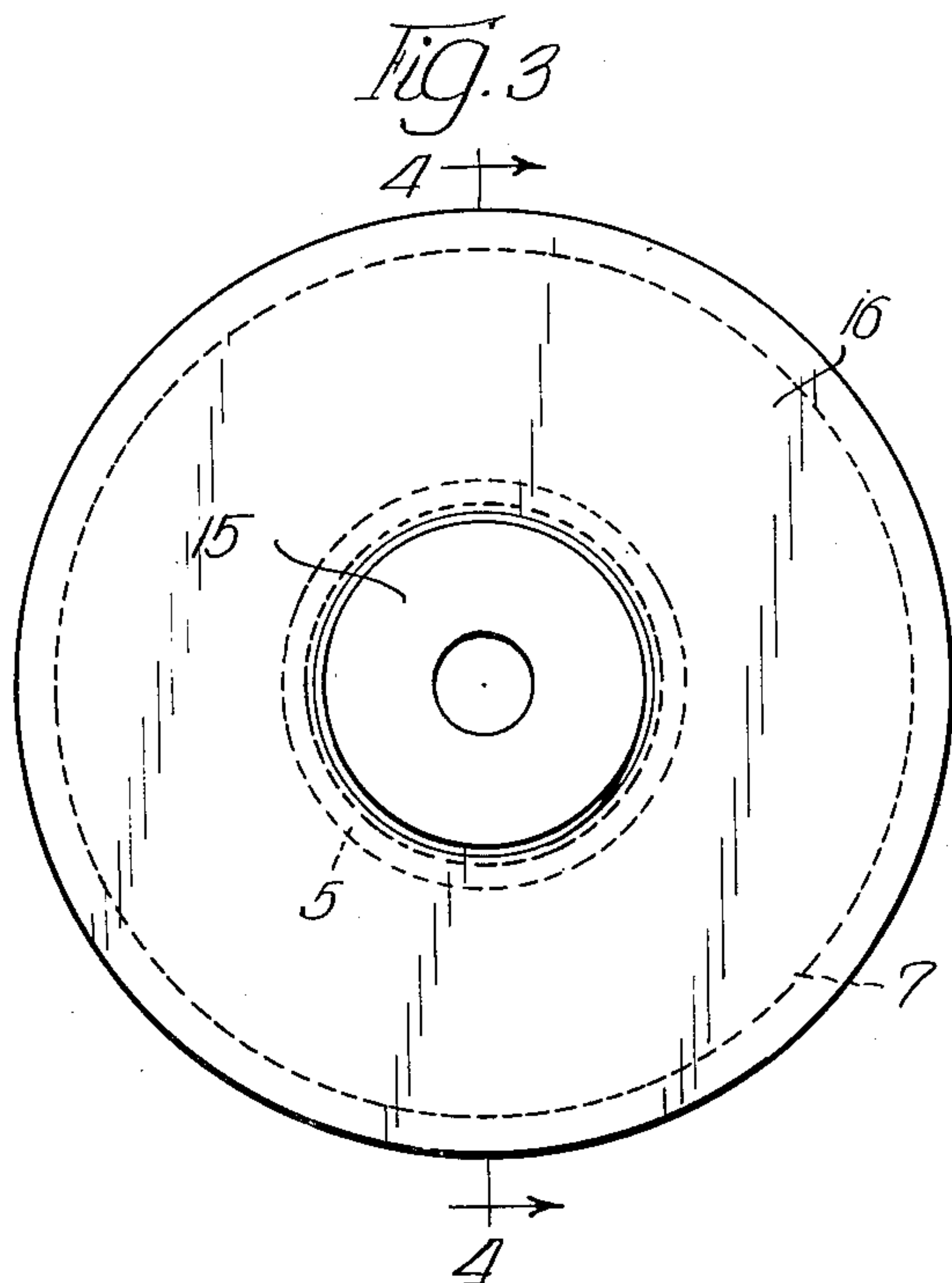
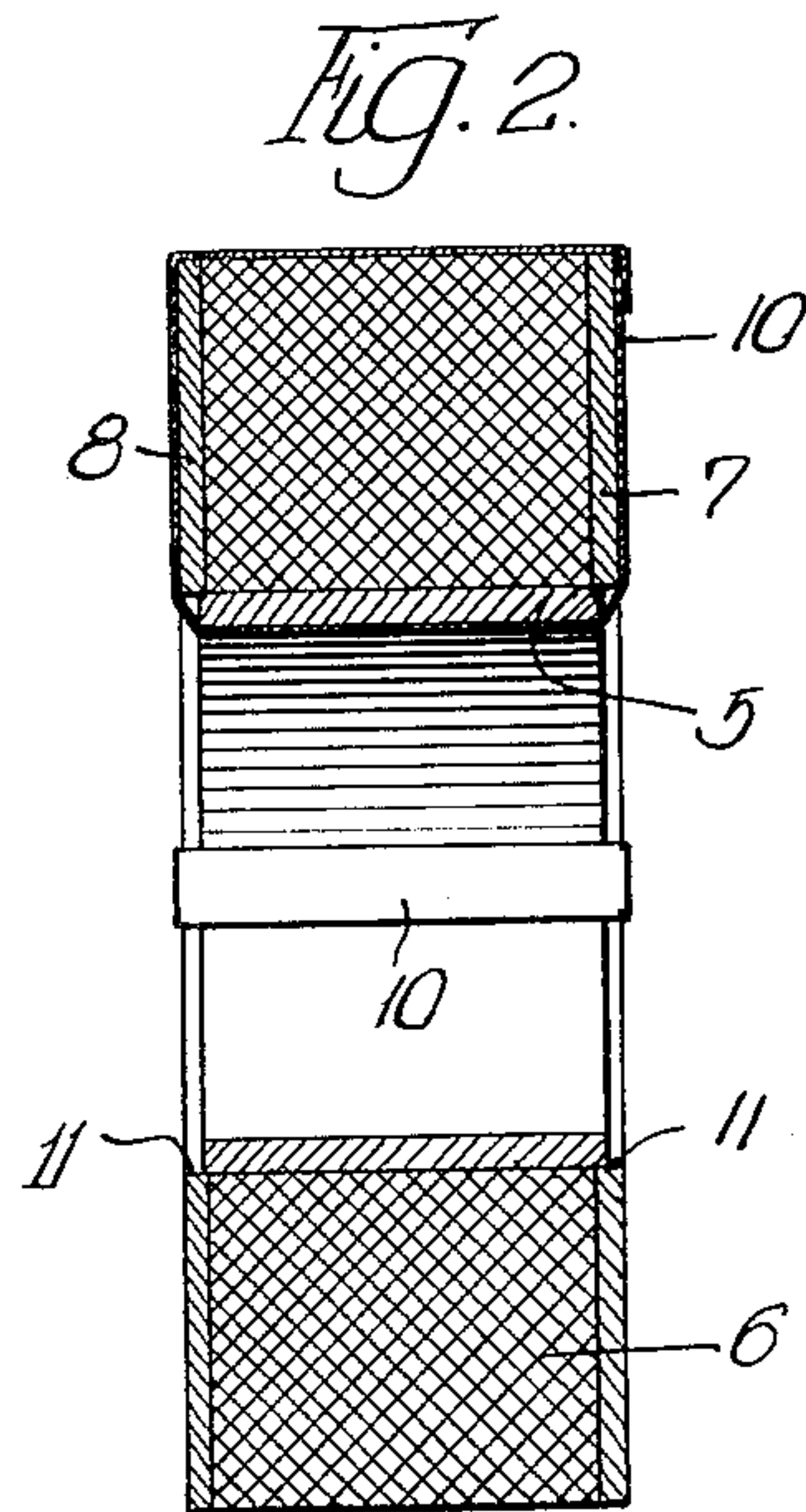
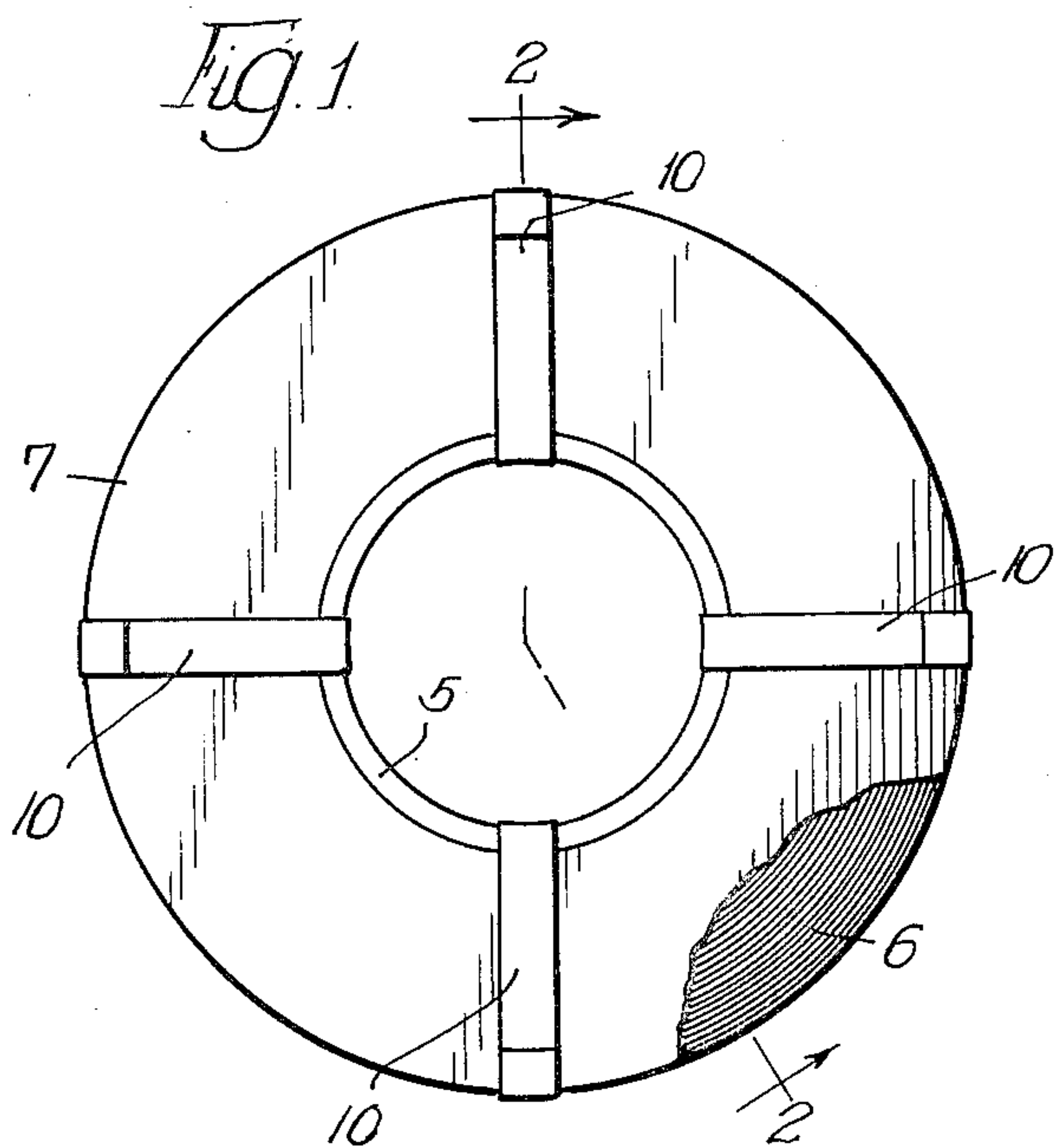
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WIRE PACKAGE

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WIRE PACKAGE

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1

The present invention relates, generally, to the packaging of coils of wire, and it relates particularly to innovations and improvements in packaging coils of wire on disposable reels which are adapted to be mounted on permanent type reels while the wire is being consumed.

While the invention is broadly applicable to wire in coil form for any use, it has been developed particularly for coils of wire as used by printers and publishers for stitching purposes and for use by boxmakers in stapling paperboard containers.

Prior to the present invention it was customary to wind the wire for these purposes on permanent type reels or spools made from wood or metal and the spools of wire were then shipped to the customer who was invoiced for the spools as well as for the wire itself. After the coils of wire had been consumed, the spools were returned to the wire manufacturer and the customer was credited with the deposit value which had been applied thereto. It was early realized that it would be advantageous both to the wire manufacturer and to the customer to develop a way of packaging the wire in a disposable type container or reel which could be inserted as a filler or replacement on a permanent type reel continuously retained and used by the customer in connection with his stitching or stapling machines. If such a disposable package could be satisfactorily worked out, it would eliminate the duplicate handling of the permanent type spools back and forth between the manufacturer and customer, as well as the bookkeeping work which was connected therewith.

Accordingly, various proposals were made from time to time for packaging the coils of wire in a disposable type package or on a disposable type of reel or spool so that it could be inserted by the customer in his permanent type reels. The following patents pertain to this particular field of invention: 1,531,147, 1,384,572, 1,254,091, 1,420,094, 1,271,308, 1,264,918 and 1,361,250.

None of the various devices suggested by these patents or by other developments in the art proved to be adequately satisfactory from a practical standpoint and a high proportion of the wire users preferred to purchase their requirements of wire on permanent type spools even though it involved the above mentioned disadvantages in connection with the handling of the spools and the bookkeeping and paper work attendant thereto. The chief objection to the various substitutes that had been proposed for winding the wire on permanent type spools was the fact that in practice there was a tendency for the

2

wire to tangle and get caught at the sides of the coil as it was being unwound after the packages were inserted or loaded onto a permanent type spool. Furthermore, difficulty was encountered in getting the machine operators to take the time and care to properly load the packages of wire into the permanent type reels.

An important object of the invention is a package of wire in coil form having a rectangular cross section with the packaging materials being of a disposable or expendable nature and including compressible side flanges and a hollow core terminating short of the outside faces of the side flanges at opposite ends so that when the package is mounted on a permanent type reel one of the sides of the reel may be tightened toward the other so as to place the compressible side flanges under compression and thereby prevent any turn of the wire from being caught in between the sides of the package as the coil of wire is unwound in use.

A further object of the invention is to tie the wire package by the use of a plurality of ties arranged around the reel and formed of a flat or ribbon-like material such as pressure sensitive adhesive tape so that when the package is loaded into a permanent type reel and the flanges of the reel are tightened together the ties will not stand out or protrude and form pressure lines or points of localized pressure but, on the contrary, the ribbon-like ties will allow the pressure on the compressible side flanges of the package to be uniform throughout the circumference.

The objects of the invention are achieved by forming the disposable sides of the packages from an inexpensive compressible material such as paperboard and having the hollow disposable core of the package so dimensioned that the ends of this core terminate short of the whole width of the package or of the faces of the compressible side pieces, thereby allowing clearance for the paperboard side pieces to be compressed together when the package is loaded onto a permanent type reel wherein one of the side flanges is removable and may be screwed toward the other side flange after the reel has been loaded.

Certain other objects of the invention will, in part, be obvious and will, in part, appear hereinafter.

For a more complete understanding of the nature and scope of the invention, reference may now be had to the following detailed description thereof taken in connection with the accompanying drawings, wherein:

Fig. 1 is a side elevational view, partly broken.

3

away, of a package of wire illustrating a preferred embodiment of the invention;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a side elevational view showing the package of wire of Fig. 1 loaded or mounted on a permanent type reel or spool having a removable flange; and

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

Referring to Figs. 1 and 2 of the drawings, the package of wire shown therein comprises a hollow core member 5 on which the coil of wire 6 is wound in between side flanges 7 and 8. The package is tied and maintained in assembled form by means of a plurality of ties 10—10 which are flat or strap-like so as to lie flatwise against the sides 7 and 8 without projecting substantially beyond the outer faces thereof. The ties 10 may advantageously be formed from reinforced pressure sensitive adhesive tape.

The ties 10 are drawn taut so as to hold the side flanges or members 7 and 8 firmly against the opposite sides of the coil 6. The hollow core 5 has a longitudinal dimension such that clearances 11—11 are provided between the opposite ends of the core member 5 and the faces of the side pieces 7 and 8.

For functional purposes the side pieces 7 and 8 are preferably formed of a compressible material such as paperboard or the like and the hollow cores 5 may likewise be formed of paperboard since it is inexpensive and may be thrown away after the wire has been consumed. Paperboard is made in several different grades and types and includes materials referred to in the trade as kraft board, chip board, cardboard, waste board, etc. In this application the term "paperboard" is used in the generic sense to designate these and similar paper base materials.

The wire manufacturer puts up his wire in the form of the package shown in Figs. 1 and 2 and this may then be shipped to the user who is provided with a permanent type spool or reel having one removable flange as shown in Figs. 3 and 4. The particular permanent type reel shown comprises a hub member 12 to which one side flange 13 may be permanently secured by means of a plurality of screws 14—14. The hub 12 is threaded as indicated at 15 on the end opposite the flange 13 so as to receive a removable side flange 16 having an internally threaded central opening.

In use, the removable flange 16 is unscrewed and lifted off from the hub 12 and one of the packages of wire shown in Figs. 1 and 2 is then slipped over the hub and the removable flange 16 is replaced. The flange 16 is then tightened up securely so as to compress the paperboard side flanges 7 and 8 in against the opposite sides of the rectangular coil 6. Such compression results in the reduction of the clearances 11 to the clearances indicated at 17—17 in Fig. 4. The ties 10 are then cut at opposite sides of the coil 6. These ties are so thin and the side pieces 7 and 8 are of such compressibility that when the package is compressed between the reel side flanges 13 and 16 there are no pressure points or pressure lines underneath the ties 10 and the compression is spread uniformly around the circumference of the package.

As the wire is consumed, the compression on the paperboard side pieces 7 and 8 is gradually released in those areas where the wire is removed but the wire is continuously maintained under

4

compression as it recedes to the hollow core member 5. Because of this compression which is continuously applied and maintained, no turn of wire can slip down along the side of the coil and become tangled or caught so as to cause a stoppage or breakage. After one of the coils 6 has been consumed on the permanent type reel, the removable flange 16 is unscrewed and the paperboard members 7 and 8 and the hollow core 5 are discarded and the reel is loaded with a new package.

Since certain minor changes of a design nature may be made in the embodiments of the invention described above in connection with the accompanying drawings, it will be understood that such embodiments are intended to be interpreted as illustrative of the invention and not in a limiting scope.

What is claimed as new is:

1. A package of wire adapted to be mounted on a reel having a removable non-compressible side flange which may be tightened toward an opposite non-compressible side flange, said wire package comprising a hollow core adapted to slip over the hub of said reel, two separate side flanges formed of a compressible material having center openings of slightly greater diameter than the outer diameter of said hollow core so as to allow said compressible side flanges to fit over said hollow core, coils of wire wound on said hollow core and filling the space between said compressible side flanges, and a plurality of ties looped through said hollow core and drawn taut around said compressible side flanges and said coils of wire, the total thicknesses of said coils of wire and of said compressible side flanges being greater than the length of said hollow core so that there is a substantial longitudinal clearance between the opposite ends of said hollow core and the outer faces of said compressible side flanges, said clearance permitting said compressible side flanges to be compressed between the non-compressible side flanges of said reel by tightening said removable side flange thereof.

2. A package of wire adapted to be mounted on a permanent type reel having a removable non-compressible side flange which may be screwed toward an opposite non-compressible side flange, said wire package comprising a hollow paperboard core adapted to slip over the hub of said reel, two separate paperboard side flanges having center openings of slightly greater diameter than the outer diameter of said hollow core so as to allow them to fit over said hollow core, coils of wire wound on said hollow core and filling the space between said paperboard side flanges, and a plurality of flat ties looped through said hollow core and drawn taut around said paperboard side flanges and said coils of wire, the total thicknesses of said coils and of said side paperboard side flanges being greater than the length of said hollow core so that there is a substantial longitudinal clearance between the opposite ends of said hollow core and the outer faces of said paperboard flanges to permit said latter flanges to be uniformly compressed between the non-compressible side flanges of said reel by screwing said removable flange toward the opposite reel flange thereof.

3. The package of wire called for in claim 2 wherein said flat ties are formed of pressure sensitive tape.

4. In combination a permanent type reel having a removable non-compressible side flange which may be tightened toward an opposite non-compressible side flange and a package of wire

5

mounted on said reel and comprising a hollow core adapted to slip over the hub of said reel, two separate side flanges formed of a compressible material having center openings of slightly greater diameter than the outer diameter of said hollow core so as to allow said compressible side flanges to fit over said hollow core, coils of wire wound on said hollow core and filling the space between said compressible side flanges, and a plurality of ties looped through said hollow core and drawn taut around said compressible side flanges and said coils of wire, the total thicknesses of said coils of wire and of said compressible side flanges being greater than the length of said hollow core so that there is a substantial longitudinal clearance between the opposite ends of said hollow core and the outer faces of said compressible side flanges, said clearance permitting said compressible side flanges to be compressed between the non-compressible side flanges of said reel by tightening said removable side flange and said compressible side flanges being so compressed.

5. In combination a permanent type reel having a removable non-compressible side flange which may be screwed on the reel hub toward an opposite non-compressible side flange and a package of wire mounted on said reel and comprising a hollow paperboard core adapted to slip over the hub of said reel, two separate paperboard side flanges, and a plurality of flat ties looped through diameter than the outer diameter of said hollow core so as to allow them to fit over said hollow

6

core, coils of wire wound on said hollow core and filling the space between said paperboard side flanges, and a plurality of flat ties looped through said hollow core and drawn taut around said paperboard side flanges and said coils of wire, the total thicknesses of said coils and of said side paperboard side flanges being greater than the length of said hollow core so that there is a substantial longitudinal clearance between the opposite ends of said hollow core and the outer faces of said paperboard flanges to permit said latter flanges to be uniformly compressed between the non-compressible side flanges of said reel by screwing said removable flange toward the opposite reel flange and said compressible side flanges being so compressed.

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