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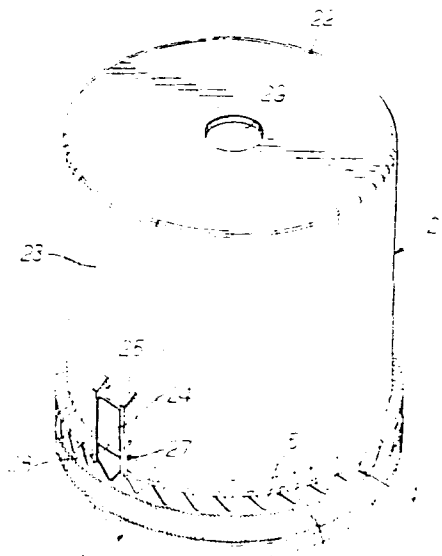
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54 An improved reel container.

57 In a two-part container having at one end a hole (29) through which wire from a reel housed in the container can be withdrawn, the two parts (1, 21) of the container are secured together by relative rotation of one with respect to the other, e. g. by a multistart screw thread. The parts carry a spring-loaded pawl and ratchet mechanism (4, 24) which permits relative rotation when the two parts are being secured together and which, when the two parts are fully engaged, prevents separation of the two parts by relative rotation in the opposite direction unless the spring-loaded pawl (24) is disengaged from the ratchet (4).



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An Improved Reel Container

This invention relates to apparatus for facilitating the transportation and de-reeling of a reel wound with wire or other flexible filamentary material, all such filamentary material hereinafter, for convenience, being included in the generic term "wire."

It is the general practice to transport a reel of wire in a two-part container which has in one of its end walls a hole, or area of weakness readily removable to leave a hole, through which wire can be drawn from the reel whilst it is still housed in the container. With a view to preventing theft of or tampering with the reel it is the custom to secure the two parts of the container together by means of a separately formed detachable locking device, usually a locking device fabricated from steel and operating with a toggle lock on a rim band. Such locking devices are difficult to assemble, are subject to corrosion and are easily mislaid.

An object of the present invention is to provide a two-part reel container which incorporates improved means for locking together the two parts of the container.

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According to the invention the reel container comprises two separately formed parts each having an end wall and, upstanding from the end wall, a circumferentially continuous side wall and one of said parts having in its end wall a hole, or an area of weakness readily removable to leave a hole, for withdrawal of wire from a reel when housed in the container, wherein the two parts are adapted to be secured together by relative rotation of one with respect to the other and carry a spring loaded pawl and ratchet mechanism which permits relative rotation between the two parts when they are being secured together and which, when the two parts are fully engaged, prevents separation of the two parts by relative rotation in the opposite direction unless the spring-loaded pawl is disengaged from the ratchet.

The improved reel container has two important advantages. Firstly, by virtue of the fact that the two parts of the container carry a spring loaded pawl and ratchet mechanism for locking the parts together, no assembly of a locking device is involved and there is no risk of a locking device being mislaid; the pawl and ratchet can be made of suitable plastics material and so the problem of corrosion need not arise. Secondly, when the two parts of the container are being secured together by rotation of one with respect to the other, the pawl and ratchet mechanism gives an audible indication as the two parts approach the position in which they are fully engaged.

In the preferred embodiment, the two parts are in

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screw threaded engagement but, in some circumstances, the two parts may be secured together by means of one or more than one bayonet fitting.

Preferably, the pawl is pivotally mounted on the side wall of one part of the container and the ratchet comprises a plurality of circumferentially spaced recesses extending around at least a part of the periphery of the side wall of the other part of the container, the boundary wall of each recess against which the pawl will bear as the two parts are screwed together being so inclined as to permit the pawl to ride over the boundary wall against the action of the spring and into the next recess and an opposite boundary wall of each recess being of such a shape that it forms an abutment which prevents the two parts from being unscrewed unless the pawl is manually disengaged from the recess against the action of the spring. Each recess of the ratchet is preferably of approximately triangular shape, two walls of the triangular recess constituting the said boundary walls and the third wall lying on a common circumference of the container with the opposite apex of the triangular recess remote from the pawl. The end of the pawl which engages successively in the recesses of the ratchet as the two parts of the container are screwed together preferably is of complementary shape.

Preferably, the pawl is in the form of a spring loaded lever pivotally mounted between a pair of guards which project outwardly

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from the side wall of the part of the container carrying the pawl and which extend substantially parallel to the axis of the container, the pivotal axis of the pawl being normal to the axis of the container.

Preferably, also, the pawl and guards have holes or grooves which, at least when the pawl is engaged in a recess of the ratchet, are in alignment and provide for securing the reel container against tampering by means of a wire and lead seal or by a plastics seal or tie.

For ease of assembly preferably a multi-start thread is employed. One of the two parts of the container preferably has associated with the or each thread a stop which is engaged by an end of the or a thread of the other part of the container when the two parts are fully screwed together.

Preferably, the part of the container that does not have a hole or area of weakness in its end wall for withdrawal of wire from the container, has a boss which upstands from its own end wall and which will be coaxial with the hole or area of weakness when the two parts are screwed together, the boss being of such an external diameter that it will be a tight fit in the bore of the hub of a reel when the reel is housed in the container. The hole through which wire is to be withdrawn may have a detachable plug or cap.

In use, the part of the container having the boss upstanding from the end wall constitutes the lower part of the container and generally, but not necessarily, the axial length of this part of the container is substantially shorter than the axial length of the other part. For con-

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venience, the lower part of the container carries the ratchet of the pawl and ratchet mechanism. To facilitate screwing and unscrewing of the part of the container, the side wall of the lower part may have a plurality of ribs or may otherwise be serrated so that it can be effectively gripped between the feet of an operator whilst the upper part of the container is screwed or unscrewed.

Preferably, each part of the container is a moulded body of thermoplastics material. Suitable thermoplastics materials include polystyrene, polypropylene and acrylonitrile butadiene styrene terpolymer. The ratchet is preferably integrally formed with the part of the container by which it is carried. The pawl is preferably also of moulded thermoplastics material.

The invention is further illustrated by a description, by way of example, of a preferred two-part reel container with reference to the accompanying drawings, in which:

Figure 1 is a pictorial view of the reel container;

Figure 2 is a sectional side view of the lower part of the reel container, and

Figure 3 is a broken isometric view of the pawl and ratchet mechanism of the reel container shown in Figure 1, drawn on a larger scale.

Referring to the drawings, the two-part reel container

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comprises a lower part 1 of moulded thermoplastics material having an end wall 2 and an upstanding, circumferentially continuous side wall 3 and, in screw threaded engagement with the lower part, an upper part 21 of moulded thermoplastics material having an end wall 22 and an upstanding, circumferentially continuous side wall 23. Screw threaded engagement between the lower part 1 and the upper part 21 is effected by means of a multi-start thread 18, each thread on the lower part having associated with it a stop which is engaged by an end of a thread of the upper part when the two parts are fully screwed together.

Extending around the side wall 3 of the lower part 1 is a ratchet 4 comprising a plurality of circumferentially spaced recesses 5 and pivotally mounted on the side wall 23 of the upper part 21 between a pair of guards 25 is a pawl 24 spring-loaded by means of a spring 26. Each recess 5 of the ratchet 4 is of approximately triangular shape, the boundary wall 6 of each recess against which the pawl 24 will bear as the parts 1 and 21 are screwed together being so inclined as to permit the pawl to ride over the boundary wall against the action of the spring 26 into the next recess and the boundary wall 7 of each recess being of such a shape as to form an abutment which prevents the two parts from being unscrewed unless the pawl is manually disengaged from the recess against the action of the spring. The guards 25 have holes 27 and the pawl 24 has a groove 28 and, when the

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pawl is engaged in a recess 5 of the ratchet 4, the holes and groove are in alignment and provide for sealing the reel container against tampering by means of a wire and lead seal or by a plastics seal or tie.

The lower part 1 has upstanding from its end wall 2 a tubular boss 8 which is of such an external diameter that it will be a tight fit in the bore of the hub of a reel when the reel is housed in the container. The upper part 21 has in its end wall 22 a central hole 29 which is coaxial with the tubular boss 8 and through which wire from a reel housed in the container can be drawn.

The side wall 3 of the lower part 1 has a multiplicity of ribs 9 so that the lower part can be effectively gripped between the feet of an operator whilst the upper part 21 is screwed to or unscrewed from the lower part.

What we claim is:

1. A reel container comprising two separately formed parts each having an end wall and, upstanding from the end wall, a circumferentially continuous side wall and one of said parts having in its end wall a hole, or an area of weakness readily removable to leave a hole, for withdrawal of wire from a reel when housed in the container, wherein the two parts are adapted to be secured together by relative rotation of one with respect to the other and carry a spring-loaded pawl and ratchet mechanism which permits relative rotation between the two parts when they are being secured together and which, when the two parts are fully engaged, prevents separation of the two parts by relative rotation in the opposite direction unless the spring-loaded pawl is disengaged from the ratchet.

2. A reel container comprising two separately formed parts each having an end wall and, upstanding from the end wall, a circumferentially continuous side wall and one of said parts having in its end wall a hole, or an area of weakness readily removable to leave a hole, for withdrawal of wire from a reel when housed in the container, wherein the two parts are adapted to be secured together by relative rotation of one with respect to the other and carry a spring-loaded pawl and ratchet mechanism which permits relative rotation between the two parts when they are being secured together and which, when the two

parts are fully engaged, prevents separation of the two parts by relative rotation in the opposite direction unless the spring-loaded pawl is disengaged from the ratchet, the pawl being pivotally mounted on the side wall of one part of the container and the ratchet comprising a plurality of circumferentially spaced recesses extending around at least part of the periphery of the side wall of the other part of the container, the boundary wall of each recess against which the pawl will bear as the two parts are secured together being so inclined as to permit the pawl to ride over the boundary wall against the action of the spring and into the next recess and an opposite boundary wall of each recess being of such a shape that it forms an abutment which prevents the two parts from being unscrewed unless the pawl is manually disengaged from the recess against the action of the spring.

3. A reel container as claimed in Claim 2, wherein the pawl is in the form of a spring-loaded lever pivotally mounted between a pair of guards which project outwardly of the side wall of the container carrying the pawl and which extend substantially parallel to the axis of the container, the pivotal axis of the pawl being normal to the axis of the container.

4. A reel container as claimed in Claim 3, wherein the pawl and guards have holes or grooves which, at least when the pawl is engaged in the recess of the ratchet, are in alignment and provide

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for securing the reel container against tampering by means of a wire and lead seal or by a plastics seal or tie.

5. A reel container as claimed in any one of Claims 2 to 4, wherein each recess of the ratchet is of approximately triangular shape, two walls of the triangular recess constituting the said boundary walls and the third wall lying on a common circumference of the container with the opposite apex of the triangular recess remote from the pawl, and wherein the end of the pawl which engages successively in the recesses of the ratchet as the two parts of the container are relatively rotated is of complementary shape.

6. A reel container as claimed in any one of the preceding Claims, wherein the two parts of the container are in screw-threaded engagement.

7. A reel container as claimed in any one of the preceding Claims, wherein the part of the container that does not have a hole or area of weakness in its end wall for withdrawal of wire from the container, has a boss which upstands from its own end wall and which is coaxial with the hole or area of weakness when the two parts are screwed together.

8. A reel container as claimed in Claim 7, wherein the part of the container having the boss upstanding from the end wall

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constitutes the lower part of the container and the axial length of this part of the container is substantially shorter than the axial length of the other part.

9. A reel container as claimed in Claim 8, wherein the side wall of the lower part of the container has a plurality of ribs or is otherwise serrated so that it can be effectively gripped by the feet of an operator whilst the upper part of the container is screwed to or unscrewed from the lower part.

10. A reel container as claimed in any one of the preceding Claims, wherein each part of the container is a moulded body of thermoplastics material.

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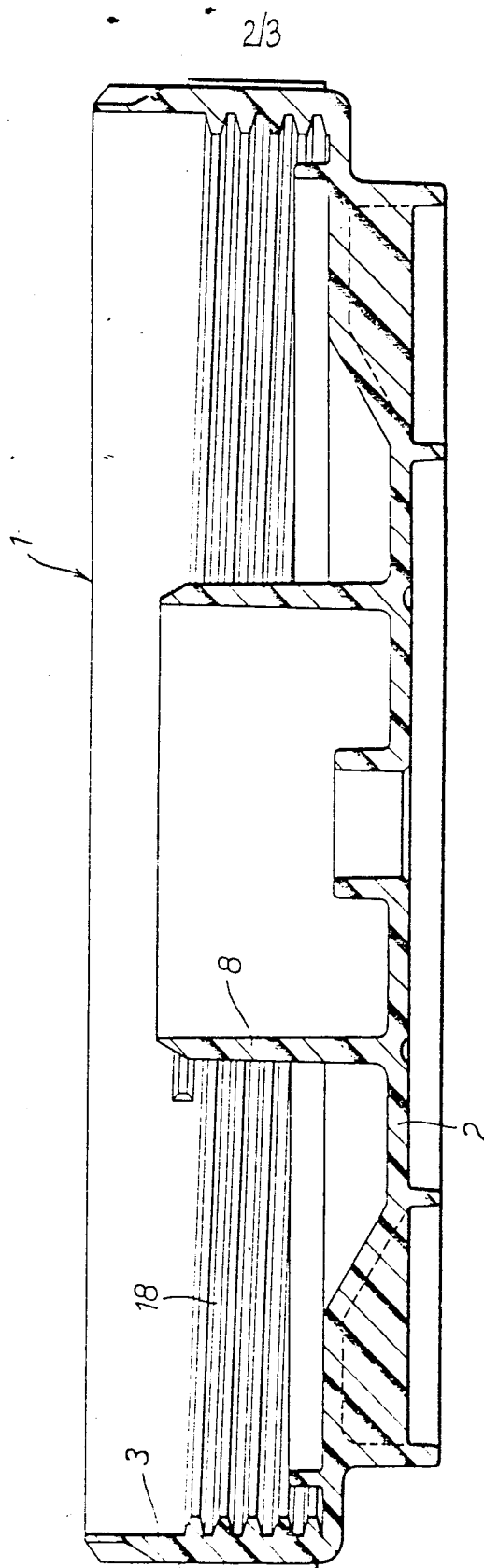


Fig.2.

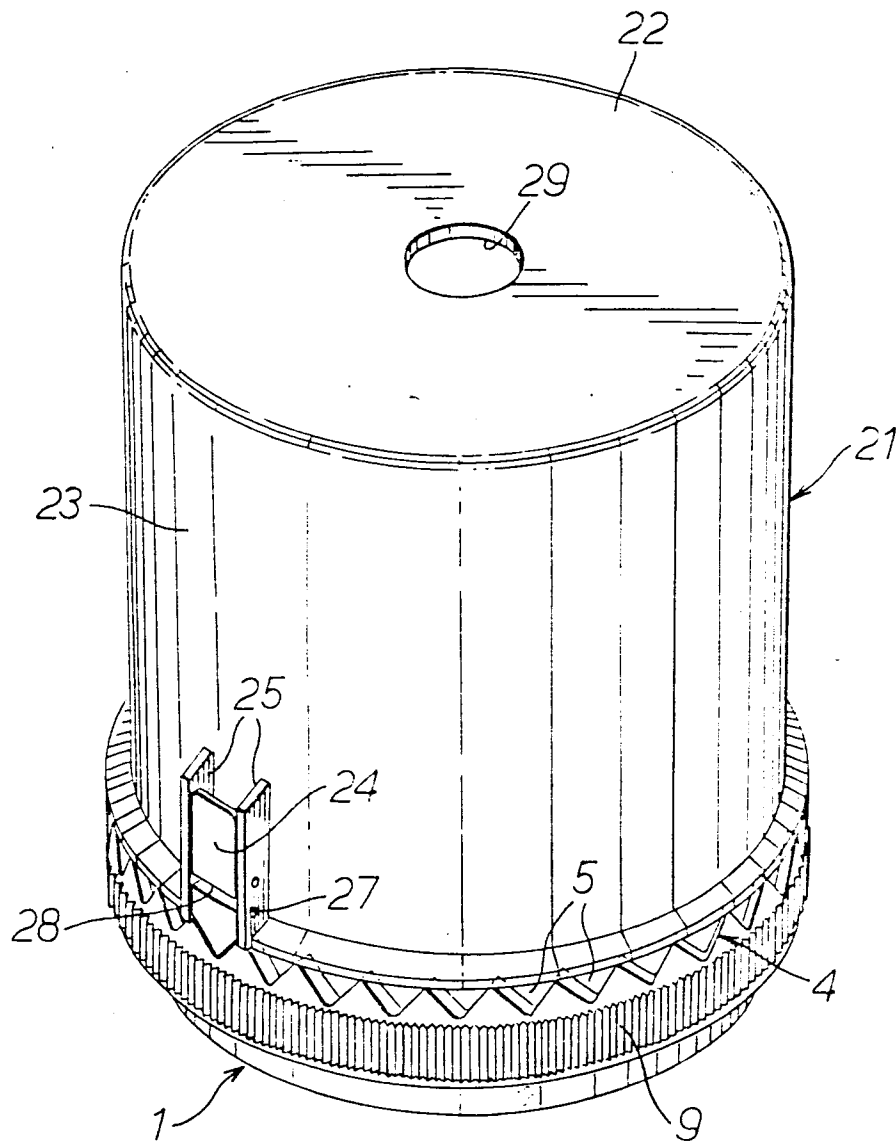
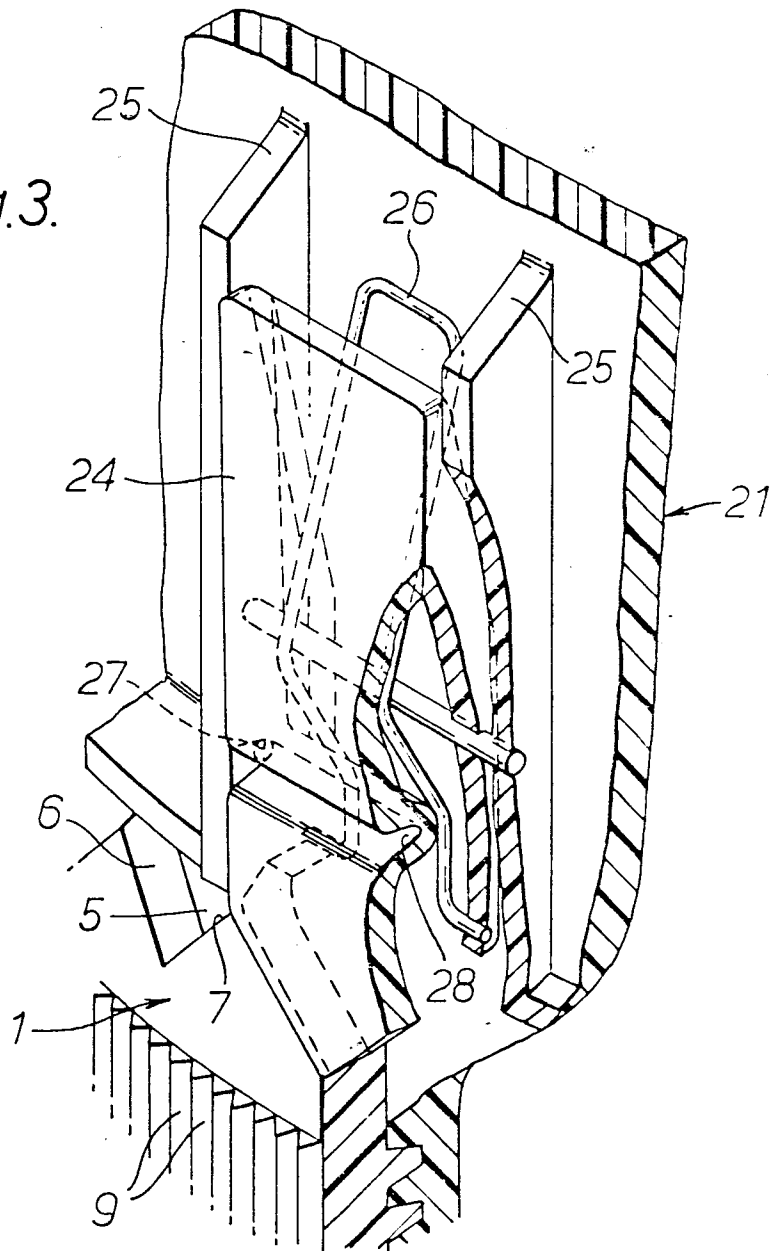


Fig.1.

Fig.3.



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EUROPEAN SEARCH REPORT

Application number

EP 79 301 176.8

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>US - A - 3 502 281</u> (P. HARDY-THE Mc LAIN) * column 2, lines 56 to 67; fig. 1 * --	1,6,10	B 65 H 49/00 B 21 C 47/16 F 16 B 39/32
	<u>DE - C - 112 472</u> (GESELLSCHAFT FÜR HUBERPRESSUNG) * fig. 1 * --	1	
	<u>DE - C - 51 195</u> (M. SCHOLTZ) * claim * --	1	TECHNICAL FIELDS SEARCHED (Int. Cl.)
	<u>DE - B - 2 421 292</u> (SUNBEAM PLASTICS CORP.) * fig. 6 * --	1	B 21 C 47/00 B 65 D 55/00 B 65 H 49/00 D 04 B 15/40 D 05 B 43/00 F 16 B 39/32
A	<u>US - A - 1 997 426</u> (A.J. MORSE et al.) * fig. 1 * --		
A	<u>US - A - 3 879 002</u> (Mc LAIN et al.) * fig. 1 * --		
A	<u>US - A - 3 856 232</u> (RINALDI) * fig. 2 * ----		
			CATEGORY OF CITED DOCUMENTS
			X. particularly relevant A. technological background O. non-written disclosure P. intermediate document T. theory or principle underlying the invention E. conflicting application D. document cited in the application L. citation for other reasons
☒ The present search report has been drawn up for all claims			S. member of the same patent family corresponding document
Place of search Berlin		Date of completion of the search 21-09-1979	Examiner BITTNER