

Feb. 23, 1943.

H. G. LUMBARD

2,311,767

CARRIER

Filed June 26, 1942

Fig. 1.

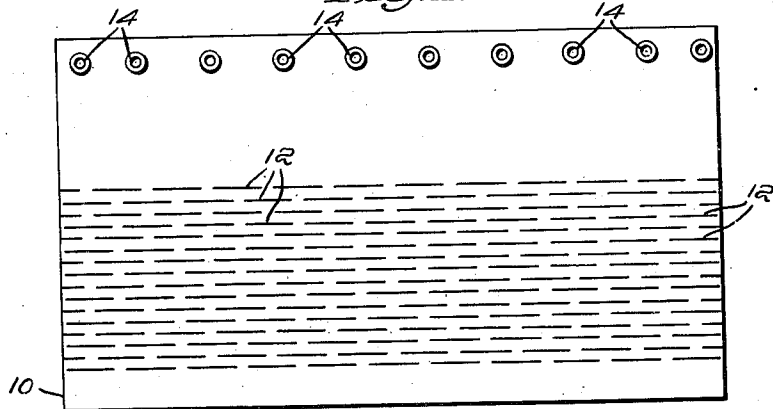


Fig. 2.

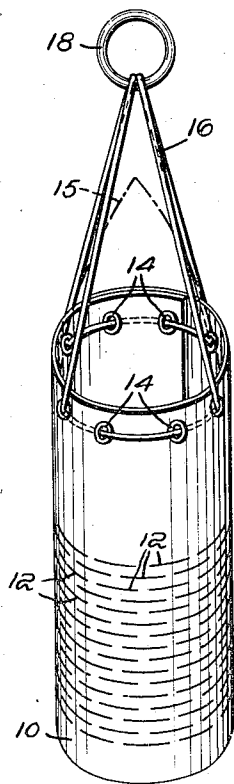


Fig. 3.

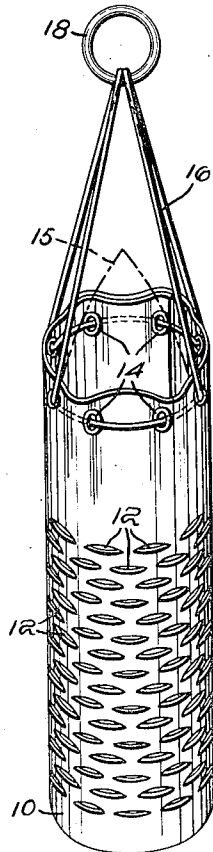


Fig. 4.

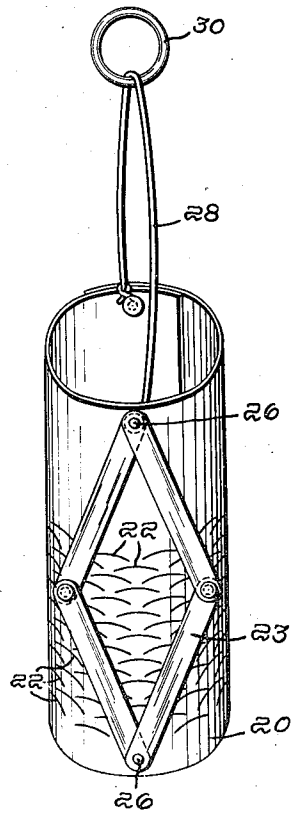
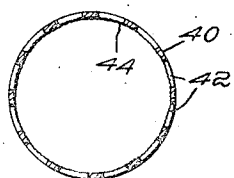


Fig. 5.



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UNITED STATES PATENT OFFICE

2,311,767

CARRIER

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Application June 26, 1942, Serial No. 448,660

9 Claims. (Cl. 294—86)

This invention relates to a carrier for substantially cylindrical objects. The principal object of the invention is to provide an extremely simple carrier which can be inexpensively manufactured. A further object of the invention is to eliminate fastening or securing elements from a carrier so that it may be applied to an object with a minimum expenditure of time without the necessity for adjusting clamps or similar devices.

One feature of the invention resides in a cylindrical body of relatively flexible material which derives its power to grip an object by reason of through and through slashes circumferentially arranged to permit elongation of the cylinder and consequent decreasing of its diameter as a result of which the cylinder shrinks upon the object and grips it firmly.

The most important advantage of a carrier made according to my invention is its extreme simplicity and cheapness, advantages which are gained without sacrificing the reliability or efficiency of operation.

These and other objects and features of the invention will be more readily understood and appreciated from the following description of preferred embodiments of the invention selected for purposes of illustration and shown in the accompanying drawing in which,

Fig. 1 is a plan view showing the first stages of manufacture of a carrier according to the invention,

Fig. 2 is a view in perspective of a completed carrier before elongation,

Fig. 3 is a view in perspective showing the appearance of the carrier after it has been operated to grip an object,

Fig. 4 is a view in perspective of an alternative form of the invention.

Fig. 5 is a cross sectional view of another alternative.

As is shown in Fig. 1 the first step in manufacturing the carrier according to the invention is to provide a flat sheet of relatively flexible material such as leather, cloth or light metal with a plurality of slashes 12 arranged transversely of the sheet and so disposed that the slashes in one row are staggered in respect to slashes in adjacent rows. The result of the slashing operation is to impart to the material the ability to expand in a direction perpendicular to the direction of the slashes with the consequent opening of the slashes together with a resultant decrease in the width of the sheet.

On the upper end of the sheet are provided

eyelets 14 which serve a purpose later to be explained. After the sheet has been slashed and the eyelets inserted, the sheet is manipulated into cylindrical form. If the material is leather or cloth the ends may be overlapped and cemented together. In performing this operation it is preferable that the slashes of the adjacent ends be registered in order that the cylinder thus formed may expand equally in all areas where the slashing has been carried out. If the material is suitable, the adjacent ends may be butt welded or a skived lapped joint may be employed, the bevelled ends being secured by rivets or other suitable means.

Draw strings 16 are inserted in the eyelet holes 14 and gathered by a ring 18 as clearly appears in Fig. 2. In Fig. 2 the carrier is shown embracing a cannon shell 15 shown in dotted lines. In Fig. 3 the ring 18 has been pulled upwardly to open the slashes in the body 10 and cause an elongation of the carrier together with a consequent decrease in its diameter. The carrier thus shrinks to grip the shell 15. It will also be seen that the draw strings in addition to exerting a longitudinal pull on the material also tend to collapse the upper end of the carrier.

In Fig. 4 I have shown an alternate form of the invention in which a cylindrical body 20 is provided with rows of staggered slashes 22. In this instance the slashes are shaped as crescents and this illustrates the fact that the slashes need not be straight lines but may have portions disposed obliquely to the axis of the cylinder.

On either side of the carrier are riveted two pairs of toggle arms 23. The extremities of the toggle arms are riveted to the upper and lower ends of the carrier as shown at 26. The upper rivets support draw strings 28 which lead to a ring 30. When this modified form of carrier is used an upward pull on the ring 30 causes a longitudinal pull on the toggle arms 23 which in turn exert a longitudinal thrust on the material of the body 20 thus opening the slashes and causing the desired reduction in the diameter of the carrier.

I contemplate that a carrier of my invention will be found particularly useful in shell handling plants or in bottling plants where the normal diameter of the carriers used will be slightly larger than the diameter of the objects to be lifted. This permits the carriers to be quickly slipped over the shell or other object, whereupon the ring is pulled to cause the carrier to grip the shell. As long as the pull is maintained, the carrier will tightly grip the shell. When it is desired to re-

move the carrier it is only necessary to release the thrust or pull on it, whereupon the original diameter will be restored by the natural resiliency of the material or by compressing the cylinder endwise and the carrier may be slipped off quietly.

It will be obvious that there are many possible variations from the forms of the invention which have been described in detail above. For example, it is not necessary to carry the slashing completely around the circumference of the carrier although it is preferable to do so in order to obtain a uniformly acting device.

The choice of material will depend largely upon the type of surface of the object to be carried. If a bottle, shell, or other smooth surfaced object is to be carried, it is preferable to make the carrier out of leather or other material having a relatively rough mat surface. On the other hand, if the object to be lifted has a rough surface, the carrier can be made of a smooth surfaced material.

In Fig. 5 I have shown a view in cross section of an alternate form of the invention in which a cylinder 40 of metal is employed and provided with slashes 42 which function in the manner above described. When a carrier of this type is used the elongation causes the points to dig in slightly to the surface of the object to be lifted. This provides an exceedingly reliable carrier in cases where the nature of the work permits.

Having now described and illustrated my invention, what I claim as new and desire to secure by Letters Patent of the United States is,

1. A carrier for cylindrical articles, which comprises a hollow substantially cylindrical body of relatively flexible material having a plurality of rows of through and through slashes arranged circumferentially in the material of the body.

2. A carrier which comprises a hollow body of relatively flexible sheet material having a plurality of rows of circumferentially disposed through and through slashes.

3. A carrier which comprises a hollow cylinder

of sheet material having a plurality of rows of circumferentially arranged through and through slashes, the slashes of each row being in staggered relation to the slashes in adjacent rows.

4. A carrier which comprises a hollow cylinder of fibrous material having a plurality of closely spaced circumferentially arranged through and through slashes disposed in relatively closely spaced rows throughout a substantial area of the cylinder.

5. A carrier, which comprises a hollow cylinder of relatively flexible material having a plurality of rows of closely spaced, short through and through, circumferential slashes, the rows of slashes extending entirely around the circumference of the cylinder throughout a substantial large area thereof.

6. A carrier which comprises a hollow cylinder of relatively flexible material having a plurality of rows of through and through slashes arranged obliquely to the axis of the cylinder, said slashes being disposed throughout a large area of the cylinder.

7. A carrier which comprises a hollow cylinder of relatively flexible material having inwardly projecting points disposed on the inner surface thereof, and a plurality of rows of through and through slashes arranged obliquely to the axis of the cylinder.

8. A carrier which comprises a hollow cylinder of relatively flexible material having rows of through and through slashes arranged transversely to the axis of the cylinder, and means for exerting a longitudinal pull on the cylinder to open said slashes and decrease the diameter of the cylinder.

9. A carrier which comprises a hollow body of relatively thin and flexible material having a plurality of rows of through and through slashes therein arranged transversely to the axis of the cylinder, and a pair of toggle arms secured on opposite sides of the body, whereby an endwise pull on the pairs of toggle arms forces them to elongate the body and decrease its diameter.

HENRY G. LUMBARD.

CERTIFICATE OF CORRECTION.

Patent No. 2,311,767.

February 23, 1943.

HENRY G. LUMBARD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 6, for "quietly" read --quite easily--; 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 30th day of March, A. D. 1943.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.