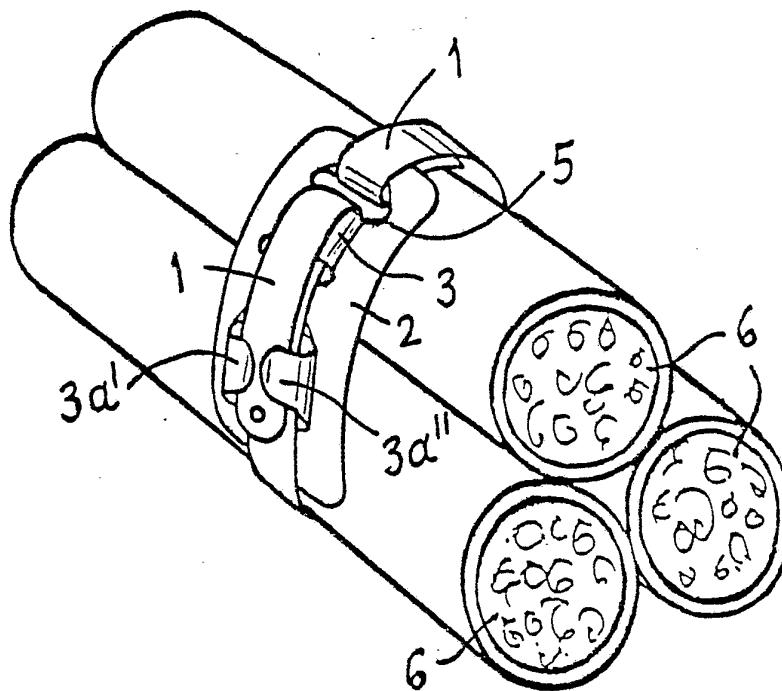


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(54) Title: DEVICE FOR STRAPPING CABLES, PIPES OR OTHER SIMILAR ITEMS, TOGETHER OR TO SUPPORTS



(57) Abstract

A device for strapping cables, pipes and similar items together or to a support comprises a strap (1) constituted by a strip of bendable material, preferably metal, attached at one end to a buckle plate (2), conveniently of sheet metal, by passing one end of the strap (1) through a slot (5) and bending it back to underlie a portion of the strap which is wrapped around the cables (6) or the like to be strapped. The buckle plate has a raised bridge portion (3) and an aligned pair of fixed ears (3a', 3a'') with a gap therebetween. The other end of the strap (1) is threaded beneath the ears and passed beneath the bridge portion (3). After pulling the stripping tight, its free end is bent back over the bridge portion (3) and secured by tilting it slightly about its axis and sliding it through the gap between the ears 3a' and 3a''. In other embodiments the strip (1) is integral with the buckle plate (2).

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DEVICE FOR STRAPPING CABLES, PIPES
OR OTHER SIMILAR ITEMS, TOGETHER OR TO SUPPORTS

1 This invention relates to a device for strapping
cables, pipes or other similar items, together or to
a support, and which is intended to be assembled around
the cables or the like without the use of tools, it
5 being sufficient to assemble the device by pulling the
strapping hand tight, and thus avoiding the possibility
of over-tensioning the strap.

 The present invention consists in a strapping
device comprising a strap constituted by a strip of
10 bendable material, preferably metal, attached at one
end to a buckle plate, conveniently made of sheet
metal, which is adapted to secure the other end of the
strip after the strip has been wrapped tight around
the members to be strapped, wherein the buckle plate has
15 a bridge portion which is wider than the width of the
strip, the buckle plate also including means for
holding the other end of the strip after it has been
passed under the bridge portion and has been bent to
overlap the top of the bridge portion, characterised
20 in that the holding means comprises two fixed ears
raised above the plate to form a passage therebeneath
substantially in alignment with the bent back end
portion of the strip, said two fixed ears having a gap
therebetween sufficient to permit the thickness of
25 the strip to pass therethrough, the distance between
the connections of the fixed ears to the buckle plate
being at least approximately twice the width of the
strip.

 In order that the invention may be more clearly
30 understood, reference will now be made to the accompany-
ing drawing, in which:-



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1 Fig. 1 is a perspective view of one embodiment
of the device, according to the invention, shown assembled
around and tying together three electric cables,

Fig. 2 shows the strap of Fig. 1,

5 Fig. 3 is a plan view of the buckle plate shown
in Fig. 1,

Fig. 4 is a section through Fig. 3 taken along
the line Z-Z,

Fig. 5 is a perspective view of an alternative
10 embodiment,

Figs. 6 and 7 are perspective views of further
embodiments.

Referring to Figs. 1 to 4, the device comprises
a strap 1 of bendable strip metal, conveniently 0.5mms
15 thick type 316 stainless steel, and a buckle plate 2,
conveniently made of the same material 0.889mms thick,
and stamped to form a raised bridge portion 3 providing
a passage beneath the bridge which is wider than the
width of the strip steel forming the strap, the under-
20 side of the flat top of the bridge preferably being
spaced from the surface of the plate by slightly less
than the thickness of the strip.

Slots 5 are formed in the plate at opposite ends
of the bridge portion 3. The edges of the slots remote
25 from the bridge portion may be formed downwards as shown
to facilitate pushing the strip through the bridge.

The buckle plate is also formed with a second
raised bridge portion which is divided approximately
along its centre line to form two fixed ears 3a' and
30 3a'' and is made wider than the bridge 3.

To assemble the device around, for example a
group of electric cables 6 to tie them together, one

1 end of the strip 1 is passed through the slot 5 nearest
an end of the plate, from the raised bridge side of
the buckle plate, for a distance of about 2.5cms, and
is folded back on the strip. The strip attached to
5 the buckle plate is then wrapped around the cables 6
with the bridge portion 3 facing away from the cables,
and the free end of the strip 1 is threaded under the
ears 3a' and 3a" and through the passage under the
bridge 3. Holding the buckle plate 2 firmly to prevent
10 the assembly turning around the cables, the free end
of the strip is pulled until the strip is tight, and
at the same time the projecting end of the strip is
bent back over the bridge 3 and the ears. The free
end of the strip is then first tilted slightly about
15 its axis and is slid through the gap 4 between the fixed
ears 3a' and 3a" with its edge inserted beneath one of
the ears. It is then pushed sideways until its other
edge is clear of the end of the second ear, where-
upon the strip is pushed sideways in the opposite direc-
20 tion until its said other edge is engaged below said
second ear and the strip is centralised beneath the
fixed ears. The strip and buckle are now secured.
The fixing and securing of the strapping is thus a
simple operation to perform, even under difficult
25 conditions. No bending of the ears is necessary, and
consequently damage to the surface finish on the buckle
and strip is minimised. To facilitate inserting the
free end of the strip beneath the ears, the overall
width between their connections to the buckle 2 should be
30 approximately twice the width of the strip. For example,
for a $\frac{1}{4}$ inch (6.3mm) wide strip of 26SWG (0.46mm)
stainless steel, the internal width of the bridge 3 can

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1 be 112mm and of the bridge 3a 143mm. The free ends
3c of the ears may be bent slightly away from the buckle
to form lead-in portions facilitating sideways insertion
of the strip beneath the ears.

5 Various modifications may be made without
departing from the scope of the invention. For example,
instead of stainless steel the components may be made
of mild steel or other suitable material. Further the
strap may be attached to the buckle plate by welding,
10 or by stamping it integrally with the buckle plate as
shown in Figure 5, in which the buckle plate 2 of the
construction shown in Figure 4 is made in one piece
with the strip 1.

Instead of stamping up the fixed ears 3a' and
15 3a'' from the centre of the buckle plate, they may be
constituted by ears projecting from the edge of the
buckle plate and folded back inwards to their fixed
positions with a gap 4 therebetween.

Figures 6 and 7 which show modified constructions
20 are particularly suitable for smaller and lighter
strapping. In each of these embodiments the buckle
portion 2 is integral with the strip 1, and both the
bridge 3b and the ears 3b' and 3b'' are formed by folding
up ear portions from opposite sides of the buckle
25 portion. The ear portions forming the bridge 3b may
be shaped to form a recess 7 for centralising the strip
when it is folded back over the bridge 3b.

The buckle portions of the embodiments of Figures
6 and 7 can also be made as separate buckle plates to
30 which the end of the strap 1 can be attached. It is not
essential for the bridge 3 or 3b to be raised above the
main body or base of the buckle or buckle portion; it
may lie substantially flush with the remainder of the
plate forming the buckle.



CLAIMS

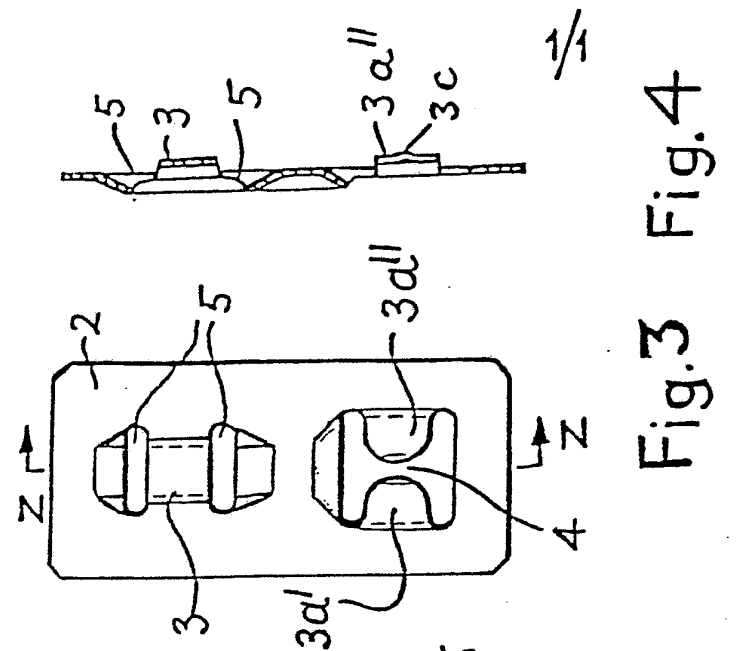
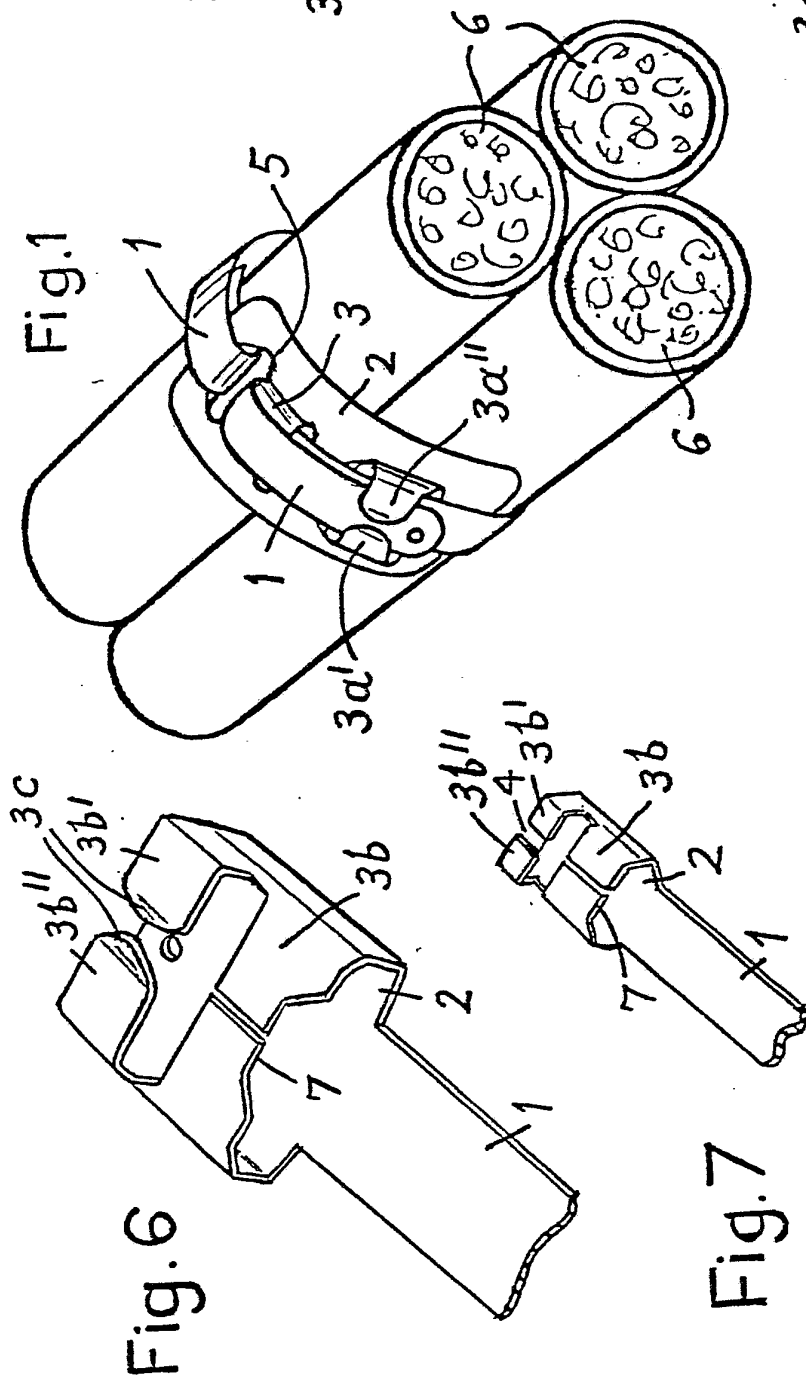
- 1 1. A strapping device comprising a strap constituted
by a strip (1) of bendable material attached at one end
to a buckle plate (2) which is adapted to secure the
other end of the strip after the strip has been wrapped
5 tight around the members to be strapped, wherein the
buckle plate has a bridge portion which is wider than
the width of the strip, the buckle plate also including
means for holding the other end of the strip after it
has been passed under the bridge portion and has been
10 bent to overlap the top of the bridge portion, characterised in that the holding means comprises two fixed
ears (3a', 3a'', 3b', 3b'') raised above the plate (2) to
form a passage therebeneath substantially in alignment
with the bent back end portion of the strip (1), said
15 two fixed ears having a gap therebetween sufficient to
permit the thickness of the strip (1) to pass there-
through, the distance between the points of connection
of the fixed ears (3a', 3a'', 3b', 3b'') to the buckle plate
(2) being at least approximately twice the width of the
20 strip (1).
2. A device according to claim 1, characterised
in that the fixed ears (3a', 3a'') are formed by a second
bridge portion substantially in alignment with the
first bridge portion (3) and raised above the surface
25 of the plate (2), said second bridge portion being
divided approximately along its centre line to provide
the gap (4).
3. A device according to claim 1, characterised
in that the fixed ears (3b', 3b'') are constituted by
30 ears projecting from the edge of the buckle plate (2)
and folded back over the plate to their positions with
a gap (4) therebetween.



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- 1 4. A device according to claim 1, characterised in
that the free ends (3c) of the ears (3a', 3a'', 3b', 3b'')
are inclined away from the buckle plate (2) to facilitate
sideways insertion of the strip beneath the ears.
- 5 5. A buckle plate for connecting together opposite
ends of a length of strapping constituted by a strip
of bendable material, characterised by said plate (2)
having a first raised bridge portion (3) providing a
passage beneath the bridge which is wider than the width
10 of the strip (1) with which the buckle is intended to
be used, and a second raised bridge portion substantially
in alignment with said first bridge portion and divided
approximately along its centre line to provide two
fixed ears (3a', 3a'') with a gap (4) therebetween, the
15 width between the points of connection of the fixed
ears (3a', 3a'') to the plate (2) being approximately
twice the width of the strip (1) with which the buckle
is intended to be used.
6. A buckle plate according to claim 5, characterised
20 in that the free ends (3c) of the ears are inclined away
from the buckle plate to facilitate sideways insertion
of the strip beneath the ears.





INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 83/00102

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) *		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC ³ : F 16 L 3/12; B 65 D 63/06		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System	Classification Symbols	
IPC ³	F 16 L; B 65 D	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category *	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
A	FR, E, 49990 (MAUCLERT) 29 September 1939 see figures 2,4 ---	1-3,5
A	GB, A, 570492 (UNIQLIP LIMITED) 10 July 1945 see figures 1-9 ---	1-3,5
A	US, A, 2759233 (MACCHESNEY) 21 August 1956 see figure 1 ---	1-3,5
A	US, A, 2377224 (GERRARD) 29 May 1945 see figures 1-3 -----	1
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>* Special categories of cited documents: ¹⁵</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 48%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </div> </div>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search ³	Date of Mailing of this International Search Report ³	
24th June 1983	14 JUL 1983	
International Searching Authority ¹	Signature of Authorized Officer ²⁰	
EUROPEAN PATENT OFFICE	G.L.M. Kruydenberg	

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/GB 83/00102 (SA 5031)

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 07/07/83

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-E- 49990		None	
GB-A- 570492.		None	
US-A- 2759233		None	
US-A- 2377224		None	



For more details about this annex :
see Official Journal of the European Patent Office, No. 12/82