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(54) METHOD FOR PRODUCING A SOCKET FOR LEVER FASTENER DEVICES FOR SPORTS FOOTWEAR

(57) A method for producing a socket for lever fastener devices for sports footwear, consisting of carrying out a series of operations on a flat metal strip L which advances in steps of length P along a blanking machine, characterised by comprising in sequence the steps of:
a) initial blanking operation to punch two holes (4), said holes (4) being aligned along the advancing axis of the metal strip, said holes (4) being equidistant about the central axis through the step length P,
b) second blanking operation to punch a further pair of holes (6), said holes (6) being equidistant about the central axis through the step length P,
c, d) third and fourth blanking operations on the sheet metal to follow the outline of the plane development 8 of the socket to be produced,
e) advancing through one step,
f) deformation with punch and die to cause the blanked portion (8) to assume a shape of U cross-section with the free end having the arms (10) closer together and with the base surface rising to blend into the sheet metal,
g) advancing through one step,
h) bending to connect the two arms (10) of the end portion together to form a cylindrical portion (12).
i) advancing through one step,
l) compressing the cylindrical portion (12) to bring it to the correct value for the subsequent threading step,
m) advancing through one step,
n) threading the inner surface of the cylindrical portion (12),
o,p) advancing through one step,
q) detaching the finished socket from the metal strip, and
r) removing the discarded material.

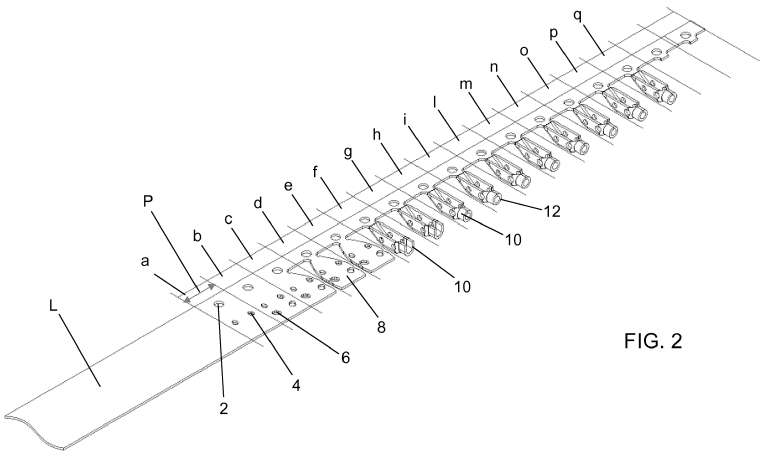

FIG. 2

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Description

[0001] The present invention relates to a method for producing a socket for lever fastener devices for sports footwear.

[0002] Lever fastener devices for sports footwear are known. Said devices substantially comprise a fork, to the prongs of which the arms of a U-shaped lever are pivoted on pins. The arms are also connected by a further pin on which a socket is pivoted, in which the puller of a U-bolt is adjustably engaged.

[0003] These known sockets have however the drawback of a substantial product cost as they are generally produced by lathe operations.

[0004] Another drawback is the impossibility of making embellishing incisions on the outer surface.

[0005] The objects of the invention are to eliminate these drawbacks and provide a socket of low cost which can be machined on its lateral surface.

[0006] These objects are attained according to the invention by a socket production method as described in claim 1.

[0007] A preferred embodiment of the present invention is further clarified hereinafter by way of non-limiting example with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a socket produced by the method of the invention,
Figure 2 is a perspective view showing the successive operations to produce the socket starting from a metal sheet,
Figure 3 is a plan view thereof,
Figure 4 shows a longitudinal section through the socket with the pin inserted.

[0008] As can be seen from the figures, the method of the invention consists of carrying out a series of operations on a flat metal strip L, preferably of steel, which advances in steps of length P along a blanking machine.

[0009] In particular, the method comprises in sequence the steps of:

a) initial blanking operation to punch a control hole 2 and two holes 4, said holes 4 being aligned along the advancing axis of the metal strip and having a diameter less than that of said hole 2, said holes 4 being equidistant about the central axis through the step length P,
b) second blanking operation to punch a further pair of holes 6, said holes 6 being equidistant about the central axis through the step length P,
c, d) third and fourth blanking operations on the sheet metal to follow the outline of the plan development 8 of the socket to be produced,
e) advancing through one step,
f) deformation with punch and die to cause the blanked portion 8 to assume a shape of U cross-section with the free end having the arms 10 closer together and with the base surface rising to blend into the sheet metal,
g) advancing through one step,
h) bending to connect the two arms 10 of the end portion together to form a cylindrical portion 12,
i) advancing through one step,
l) compressing the cylindrical portion 12 to bring it to the correct value for the subsequent threading step,
m) advancing through one step,
n) threading the inner surface of the cylindrical portion 12,
o,p) advancing through one step,
q) detaching the finished socket from the metal strip, and
r) removing the discarded material.

[0010] Once the socket has been produced in this manner, a threaded pin 14 is introduced into the cylindrical portion 12 through the hole 6, and its end then crimped to prevent its disengagement.

[0011] The pivot pin of the lever arms is then inserted into the holes 4.

[0012] From the aforegoing it is apparent that the process according to the invention is of low cost and of greater production capacity as most of the operations are carried out by blanking.

Claims

1. A method for producing a socket for lever fastener devices for sports footwear, consisting of carrying out a series of operations on a flat metal strip L which advances in steps of length P along a blanking machine, **characterised by** comprising in sequence the steps of:

a) initial blanking operation to punch two holes (4), said holes (4) being aligned along the advancing axis of the metal strip, said holes (4) being equidistant about the central axis through the step length P,
b) second blanking operation to punch a further pair of holes (6), said holes (6) being equidistant about the central axis through the step length P,
c, d) third and fourth blanking operations on the sheet metal to follow the outline of the plane development 8 of the socket to be produced,
e) advancing through one step,
f) deformation with punch and die to cause the blanked portion (8) to assume a shape of U cross-section with the free end having the arms (10) closer together and with the base surface rising to blend into the sheet metal,
g) advancing through one step,
h) bending to connect the two arms (10) of the end portion together to form a cylindrical portion

(12).
i) advancing through one step,
l) compressing the cylindrical portion (12) to bring it to the correct value for the subsequent threading step,
m) advancing through one step,
n) threading the inner surface of the cylindrical portion (12), o,p) advancing through one step,
q) detaching the finished socket from the metal strip, and
r) removing the discarded material.

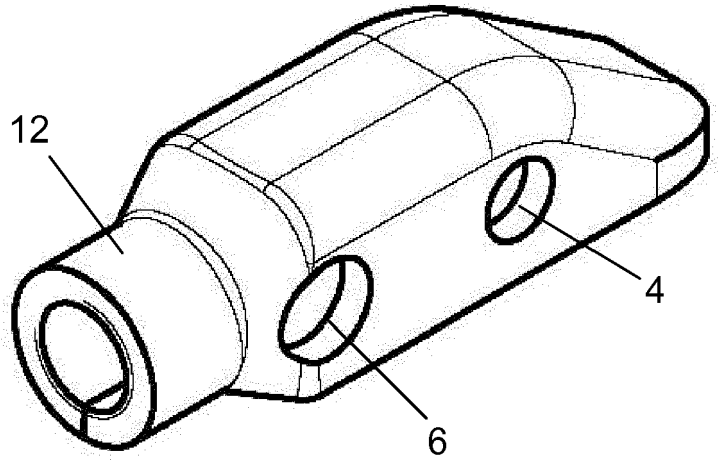


FIG. 1

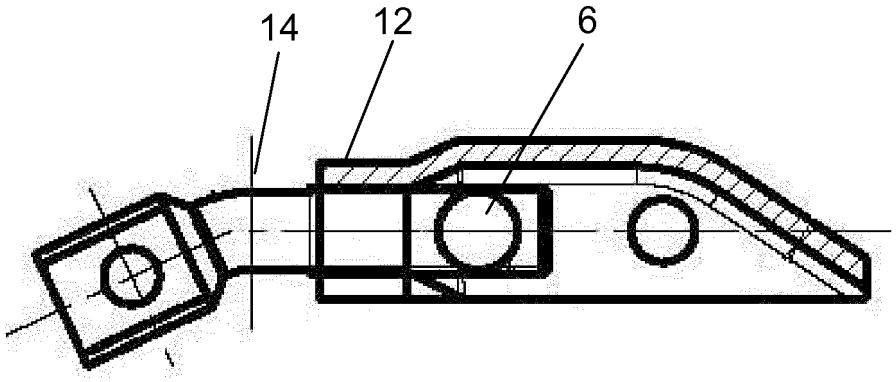


FIG. 4

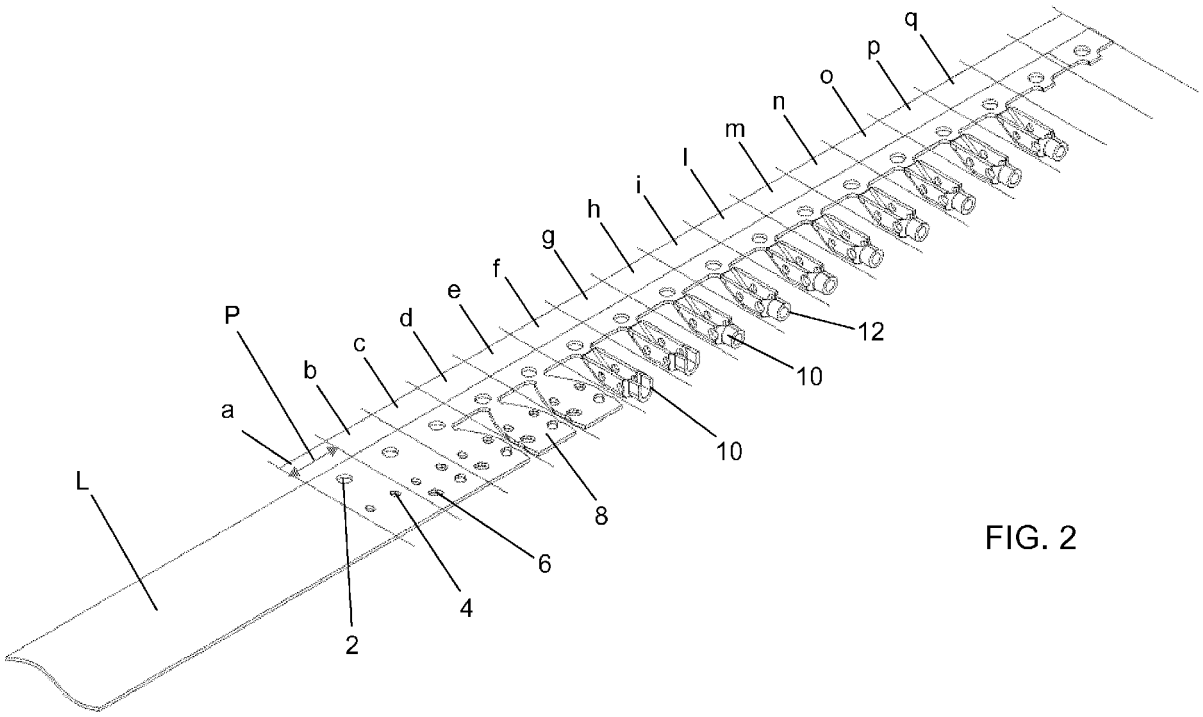
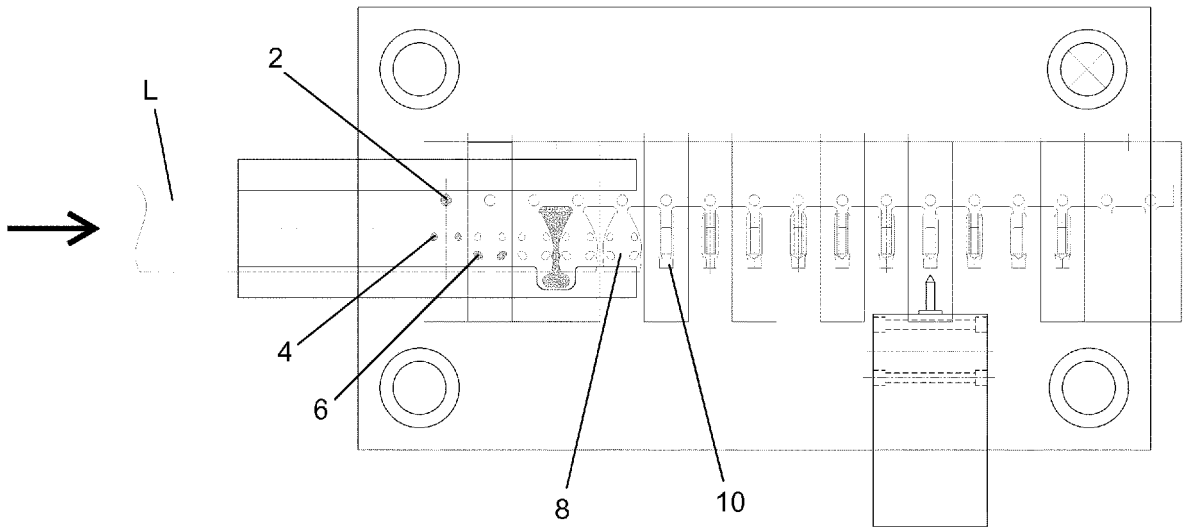


FIG. 2

FIG. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 15 19 1561

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 1 922 944 A1 (PREMEC S P A [IT]) 21 May 2008 (2008-05-21) * the whole document *	1	INV. A43C11/14 A43D999/00 B21D28/34
A	EP 2 165 618 A1 (TECNOLOGICA S P A [IT] GI DI MECCANICA S P A [IT]) 24 March 2010 (2010-03-24) * the whole document *	1	
A	EP 2 147 609 A1 (PREMEC S P A [IT]; BAGGIO GIORGIO [IT]) 27 January 2010 (2010-01-27) * the whole document *	1	
A	EP 2 238 852 A1 (O L M SRL [IT]) 13 October 2010 (2010-10-13) * the whole document *	1	

TECHNICAL FIELDS SEARCHED (IPC)

A43C
A43D
B21D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 March 2016	Cianci, Sabino

CATEGORY OF CITED DOCUMENTS

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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15-03-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1922944 A1	21-05-2008	AT 493042 T	15-01-2011
		EP 1922944 A1	21-05-2008
EP 2165618 A1	24-03-2010	NONE	
EP 2147609 A1	27-01-2010	EP 2147609 A1	27-01-2010
		IT 1390619 B1	09-09-2011
EP 2238852 A1	13-10-2010	EP 2238852 A1	13-10-2010
		IT TV20090012 U1	02-10-2010

EPO FORM P0459

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