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(54) **Wire-forming machine**

(57) Machine for forming metal wire comprising a wire forward-feeding and coiling unit (2) and a plurality of forming plates (40) arranged downstream of said unit (2), in which these plates support a respective plurality of forming heads (100), and in which said wire forward-feeding and coiling unit (2) is provided with a plurality of pairs of mutually opposing rollers (3,3A,18,19) revolving about respective parallel axes (11,12,18A,18B,19A,19B) as driven by an assembly of kinematical mecha-

nisms with a driving wheel associated to each one of said rollers; to each one of said pairs of rollers there is associated a pair of said driving wheels, the axes of rotation of which are parallel, and which are engaged via a gear coupling with a driving shaft that is orthogonal to the plane defined by the parallel axes of rotation of said pairs of driving wheels.

Said gear coupling is of the inclined-teeth type, preferably with cylindrical helical gears.

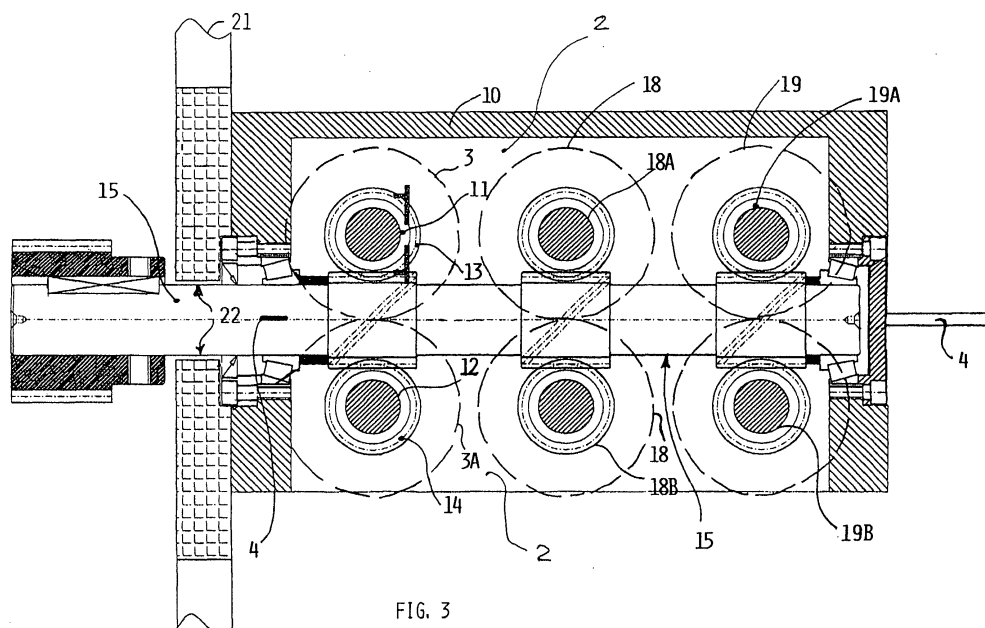


FIG. 3



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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 363 681 A (SPECK NORBERT ET AL) 15 November 1994 (1994-11-15) * column 2, line 61 - column 3, line 39; figures 1-4 *	1,2,4-6	B21F23/00 B21F35/00
X	DE 199 38 855 A (ITAYA SEISAKU SHO TOKIO TOKYO) 2 March 2000 (2000-03-02) * page 4, line 58 - page 5, line 46; figures 1,10-14 *	1-5	
P,X	DE 202 06 030 U (MINYU MACHINERY CORP) 29 August 2002 (2002-08-29) * figures 1,3 *	1-4	
A	DE 101 00 387 A (TANG WELL TECH CO) 18 July 2002 (2002-07-18) * figure 1 *	1	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B21F B21D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 22 December 2003	Examiner Ritter, F
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-8, 11



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LACK OF UNITY OF INVENTION
SHEET B

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-8,11

Independent claim 1 - first invention: The subject-matter of claim 1 is a machine for forming metal wire. The problem solved by the characterizing features of this claim consists in the provision of a rotatable forward-feeding and coiling unit of less inertia, whereby higher production speeds are enabled.

2. claims: 9,10

Independent claim 9 - second invention: Due to the reference back to the preamble of claim 1, claim 9 has to be regarded as an independent claim. The subject-matter of claim 9 is also a wire forming machine. The problem solved by the characterizing features of this claim, namely by the provision of the two opposing studs, consists in the possibility of manufacturing bends of two different diameters with only one bending head.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 01 4678

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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22-12-2003

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