

ID-A049 391

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS, (U)
SEP 77 S Z FIGLIN, A B GERCHIKOV, Y G KALPIN
FTD-ID(RS)T-1552-77

F/G 11/6

UNCLASSIFIED

NL

1 of 1
AD
AO49391



END
DATE
FILMED
3 - 78
DDC

AD-A049391

1

FTD-ID(RS)T-1552-77

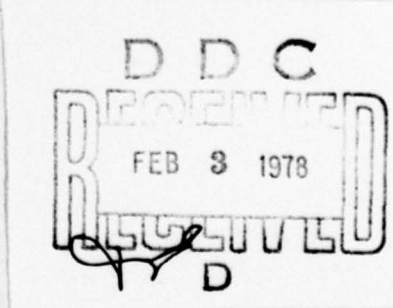
FOREIGN TECHNOLOGY DIVISION



METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS

by

S. Z. Figlin, A. B. Gerchikov,
Yu. G. Kalpin



Approved for public release;
distribution unlimited.



FTD

ID(RS)T-1552-77

ACCESSION FOR	
NTIS	White Section <input checked="" type="checkbox"/>
DDI	Dist Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION.....	
BY.....	
DISTRIBUTION/AVAILABILITY CODES	
Dist.	AVAIL. AND/OR SPECIAL
A	

EDITED TRANSLATION

FTD-ID(RS)T-1552-77

14 September 1977

MICROFICHE NR: *FD-77C-001168*

METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS

By: S. Z. Figlin, A. B. Gerchikov, Yu. G. Kalpin

English pages: 3

Source: USSR Patent No. 159382, 7 Dec 1963, PP. 1-2

Country of origin: USSR

Translated by: Gale M. Weisenbarger

Requester: FTD/ETIL

Approved for public release; distribution unlimited

THIS TRANSLATION IS A RENDITION OF THE ORIGINAL FOREIGN TEXT WITHOUT ANY ANALYTICAL OR EDITORIAL COMMENT. STATEMENTS OR THEORIES ADVOCATED OR IMPLIED ARE THOSE OF THE SOURCE AND DO NOT NECESSARILY REFLECT THE POSITION OR OPINION OF THE FOREIGN TECHNOLOGY DIVISION.

PREPARED BY:
TRANSLATION DIVISION
FOREIGN TECHNOLOGY DIVISION
WP-AFB, OHIO.

FTD

ID(RS)T-1552-77

Date 14 Sept 1977

U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>А а</i>	A, a	Р р	<i>Р р</i>	R, r
Б б	<i>Б б</i>	B, b	С с	<i>С с</i>	S, s
В в	<i>В в</i>	V, v	Т т	<i>Т т</i>	T, t
Г г	<i>Г г</i>	G, g	У у	<i>У у</i>	U, u
Д д	<i>Д д</i>	D, d	Ф ф	<i>Ф ф</i>	F, f
Е е	<i>Е е</i>	Ye, ye; E, e*	Х х	<i>Х х</i>	Kh, kh
Ж ж	<i>Ж ж</i>	Zh, zh	Ц ц	<i>Ц ц</i>	Ts, ts
З э	<i>З э</i>	Z, z	Ч ч	<i>Ч ч</i>	Ch, ch
И и	<i>И и</i>	I, i	Ш ш	<i>Ш ш</i>	Sh, sh
Й й	<i>Й й</i>	Y, y	Щ щ	<i>Щ щ</i>	Shch, shch
К к	<i>К к</i>	K, k	Ъ ъ	<i>Ъ ъ</i>	"
Л л	<i>Л л</i>	L, l	Ы ы	<i>Ы ы</i>	Y, y
М м	<i>М м</i>	M, m	Ь ь	<i>Ь ь</i>	'
Н н	<i>Н н</i>	N, n	Э э	<i>Э э</i>	E, e
О о	<i>О о</i>	O, o	Ю ю	<i>Ю ю</i>	Yu, yu
П п	<i>П п</i>	P, p	Я я	<i>Я я</i>	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
 When written as ë in Russian, transliterate as yë or ë.
 The use of diacritical marks is preferred, but such marks may be omitted when expediency dictates.

GREEK ALPHABET

Alpha	A	α	α	Nu	N	ν
Beta	B	β		Xi	Ξ	ξ
Gamma	Г	γ		Omicron	Ο	ο
Delta	Δ	δ		Pi	Π	π
Epsilon	E	ε	ε	Rho	Ρ	ρ ϑ
Zeta	Z	ζ		Sigma	Σ	σ ς
Eta	H	η		Tau	Τ	τ
Theta	Θ	θ	θ	Upsilon	Υ	υ
Iota	I	ι		Phi	Φ	φ φ
Kappa	K	κ	κ κ	Chi	Χ	χ
Lambda	Λ	λ		Psi	Ψ	ψ
Mu	M	μ		Omega	Ω	ω

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English
sin	sin
cos	cos
tg	tan
ctg	cot
sec	sec
cosec	csc
sh	sinh
ch	cosh
th	tanh
cth	coth
sch	sech
csch	csch
arc sin	\sin^{-1}
arc cos	\cos^{-1}
arc tg	\tan^{-1}
arc ctg	\cot^{-1}
arc sec	\sec^{-1}
arc cosec	\csc^{-1}
arc sh	\sinh^{-1}
arc ch	\cosh^{-1}
arc th	\tanh^{-1}
arc cth	\coth^{-1}
arc sch	sech^{-1}
arc csch	csch^{-1}
—	
rot	curl
lg	log

GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS

S. Z. Figlin, A. B. Gerchikov and Yu. G. Kalpin

Methods are known for plastic deformation of metals and alloys with heating of the billet in a molten medium, for example, of salts.

In accordance with the described method for deformation of high-alloy, low-plastic alloys with a narrow working temperature range the billet is deformed directly in the molten medium which surrounds it and the tool.

The drawing shows a diagram for realizing the described method.

The matrix 1 is placed in housing 2 filled with the liquid heating medium 3. The heater is inductor 4 the windings of which are

located around the housing 2. The temperature of the heating medium is controlled by a temperature control device (not shown in the drawing).

The movement of plunger die 5 can be continuous with a given low velocity or intermittent when a small deformation at normal speeds is alternated with standing for extending the softening process.

Billet 6 which is being deformed is heated and deformed in one unit in the melt of some substance (metal, salt, alkali, mineral heat-resistant plastic, etc.), heated to the necessary temperature. The melt provides high-speed heating of the billet and maintains the temperature in the assigned and quite narrow interval in the process of deformation which makes it possible to use slow deformation speeds without fear of the billet cooling. Simultaneously, the melt is a protective medium protecting the metal surface from oxidation, saturation with harmful elements, etc.

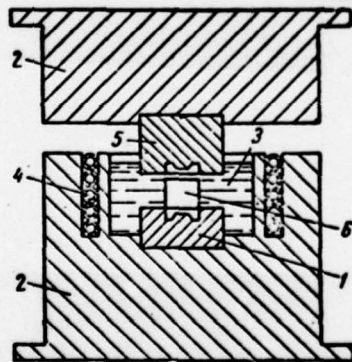
In the described process the lubricating capability of the melt is used to obtain parts with extruded elements of the type of high ribs, projections, etc., with a significant lowering of the specific pressure due to a decrease of friction.

During deformation at low velocities complete softening of the

deformed material is obtained in the process of deformation which increases its plasticity.

OBJECT OF INVENTION

Method of plastic deformation of metals and alloys with heating of the billet in a molten medium, for example, of salts is distinguished by the fact that for the purpose of deforming high-alloy, low-plastic alloys with a narrow working temperature interval the billet is deformed directly in the molten medium which surrounds it and the tool.



UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER FTD-ID(RS)T-1552-77	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS		5. TYPE OF REPORT & PERIOD COVERED Translation
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) S. Z. Figlin, A. B. Gerchikov, Yu. G. Kalpin		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Foreign Techonlogy Division Air Force Systems Command U. S. Air Force		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE 7 Dec 1963
		13. NUMBER OF PAGES 3
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) 11;13		

DISTRIBUTION LIST

DISTRIBUTION DIRECT TO RECIPIENT

ORGANIZATION	MICROFICHE	ORGANIZATION	MICROFICHE
A205 DMATC	1	E053 AF/INAKA	1
A210 DMAAC	2	E017 AF/RDXTR-W	1
B344 DIA/RDS-3C	8	E404 AEDC	1
C043 USAMIIA	1	E408 AFWL	1
C509 BALLISTIC RES LABS	1	E410 ADTC	1
C510 AIR MOBILITY R&D LAB/FIO	1	E413 ESD	2
C513 PICATINNY ARSENAL	1	FTD	
C535 AVIATION SYS COMD	1	CCN	1
C557 USAIIC	1	ETID	3
C591 PSTC	5	NIA/PHS	1
C619 MIA REDSTONE	1	NICD	5
D008 NISC	1		
H300 USAICE (USAREUR)	1		
P005 ERDA	1		
P055 CIA/CRS/ADD/SD	1		
NAVORDSTA (50L)	1		
NASA/KSI	1		
AFIT/LD	1		