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METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS, (U)
NOV 77 S Z FIGLIN, A B GERCHIKOV, Y G KAPLIN
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METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS

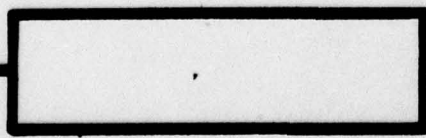
by

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



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METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS

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| 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 з | <i>З з</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.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

| Russian | English | Russian | English | Russian | English |
|---------|---------|---------|---------|----------|--------------------|
| sin | sin | sh | sinh | arc sh | sinh ⁻¹ |
| cos | cos | ch | cosh | arc ch | cosh ⁻¹ |
| tg | tan | th | tanh | arc th | tanh ⁻¹ |
| ctg | cot | cth | coth | arc cth | coth ⁻¹ |
| sec | sec | sch | sech | arc sch | sech ⁻¹ |
| cosec | csc | csch | csch | arc csch | csch ⁻¹ |

| Russian | English |
|---------|---------|
| rot | curl |
| lg | log |

1954

METHOD OF PLASTIC DEFORMATION OF METALS AND ALLOYS

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

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

By the described method for the deformation of highly alloyed low-plastic alloys, having narrow temperature range of working, the billet is deformed directly in the molten medium, surrounding it and the working tool.

The drawing shows the scheme of carrying out the described method.

Die 1 is installed in housing 2, filled with liquid heating

medium 3. The heating source is induction coil 4, winding of which is arranged around housing 2. The temperature of the heating medium is controlled by a thermoregulator (not shown on the drawing).

Movement of punch 5 can be continuous with a preset low speed or intermittent, when small deformation at ordinary speeds is alternated with standing for the passage of the process of softening.

Billet 6, undergoing deformation, is heated and deformed in one unit, in a melt of some substance (metal, salt, alkali, heat-resistant mineral oil etc.), heated to the necessary temperature. The melt provides high-speed heating of the billet and maintains the temperature in the preset and very narrow range in the process of shaping, which permits applying low speeds of deformation, while not worrying about cooling of the billet. Simultaneously the melt is a protective medium, protecting the surface of metal from oxidation, saturation by harmful elements etc.

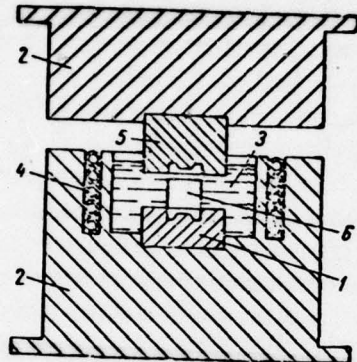
In the described process is used the lubricating ability of the melt to produce parts with extruded elements of the type of high ribs, branches etc. with considerable reduction of the specific pressure due to decrease of friction.

During deformation with low speeds we obtain complete softening

of the material being deformed in the process of shaping, which raises its plasticity.

Subject of Invention

The method of plastic deformation of metals and alloys with heating of the billet in molten medium, for example salts, is distinguished by the fact that for the purpose of deformation of highly alloyed low-plastic alloys, having narrow temperature range of working, the billet is deformed directly in the molten medium, surrounding it and the working tool.



Figure

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