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HEAVY-DUTY HYDRAULIC STAMPING PRESS WITH STRESSED REINFORCED CO--ETC(U)  
JUN 82 Y P KUZ'KO; G A PRIZHBILYAK  
FTD-ID(RS)T-0566-82

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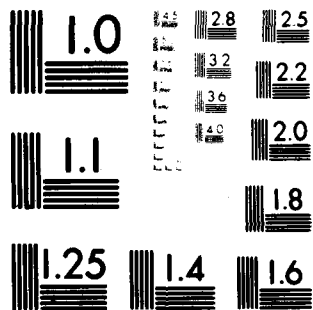
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## FOREIGN TECHNOLOGY DIVISION



HEAVY-DUTY HYDRAULIC STAMPING PRESS WITH STRESSED  
REINFORCED CONCRETE FRAME

by

Yu.P. Kuz'ko, G.A. Prizhbilyak, et al



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## EDITED TRANSLATION

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HEAVY-DUTY HYDRAULIC STAMPING PRESS WITH STRESSED  
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By: Yu.P. Kuz'ko, G.A. Prizhbilyak, et al

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PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP.AFB, OHIO.

# 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 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 ё 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 <sup>-1</sup> |
| cos     | cos     | ch      | cosh    | arc ch   | cosh <sup>-1</sup> |
| tg      | tan     | th      | tanh    | arc th   | tanh <sup>-1</sup> |
| ctg     | cot     | cth     | coth    | arc cth  | coth <sup>-1</sup> |
| sec     | sec     | sch     | sech    | arc sch  | sech <sup>-1</sup> |
| cosec   | csc     | csch    | csch    | arc csch | csch <sup>-1</sup> |

Russian English

rot curl  
lg log

### GRAPHICS DISCLAIMER

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



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| Unannounced        | <input type="checkbox"/>                   |
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| Dist               | Special                                    |
| A                  |                                            |

# HEAVY-DUTY HYDRAULIC STAMPING PRESS WITH STRESSED REINFORCED CONCRETE FRAME

## Description of Invention for Inventor's Certificate

Yu. P. Kuz'ko, G. A. Prizhbilyak, S. B. Ryslavskiy, N. I. Gorchilin, N. V. Frolov, Ye. M. Lankau, L. I. Dank, F. G. Oseled'ko, Ye. S. Parshin, A. P. Kudryaztseva, E. S. Rozovskiyy, I. G. Lyudkovskiy, M. A. Levit, T. A. Gokhbaum, M. I. Brailovskiyy and Ye. M. Petrushev

Patent No. 630848/25 submitted 12 June 1959 to Committee on Inventions and Discoveries, USSR Council of Ministers  
Published in Byulleten' izobreteniy, No. 5, 1960.

Existing heavy-duty hydraulic presses with their frames integrated with the hydraulic cylinders and made of stressed reinforced concrete are not economical enough from the point of view of metal consumption, and it is inconvenient to assemble them.

A distinguishing characteristic of the heavy-duty hydraulic press described here consists in the fact that not only the frame is made of stressed reinforced concrete, but the plunger as well, which consists of 4 elements bolted together; to accelerate the assembly process, it has a reinforced concrete brace connected to the plunger to work together with the latter to stress the vertical reinforcement of the press.

This design permits substantial reduction in the amount of metal required to fabricate the press as well as more convenient assembly.

The diagram shows a cross section of the press being described here.

The frame 1 of the press is a hollow cylinder with upper 2 and lower 3 end sections and 2 rectangular openings 4 design<sup>ed</sup> for loading billets and removing stamped pieces. Reinforced concrete plunger 5 consists of four individual sectional elements bolted together (bolts and elements not shown on diagram) for convenient assembly and disassembly.

Part of the cylinder (the length of a full plunger stroke) and the plunger are covered by a steel jacket to prevent water from penetrating the concrete. Welded to the external lateral surfaces of the plunger are plates 6 (not shown on diagram) serving as support surfaces for press guides located above the working cylinder. The guide gap is regulated by bolts 7 which advance wedges 8.

The press is equipped with two bridges 9, to which advance tables 10 with the stamps. Mounted inside these bridges are cylinders 11, which move a traverse with ejectors (not shown on diagram).

The press frame is reinforced by prestressed circular and vertical reinforcement. The circular reinforcement is stressed by machinery commonly employed to wind spiral reinforcement into reinforced concrete reservoirs. All vertical reinforcement is stressed simultaneously by the press itself. Employed for this purpose is a reinforced concrete brace (not shown on diagram) connected to the plunger; as the desired stress is applied, a pressure 20-25% greater than the operating pressure is applied to the hydraulic system. As tension is applied to the longitudinal reinforcement, the upper cross section of the press (not shown on diagram) is raised; then opening up in the walls of the cylinder is a preformed seam, into which are inserted reinforced concrete wedges. The remaining gaps are filled with concrete, and the pressure in the hydraulic system is released. The reinforced concrete

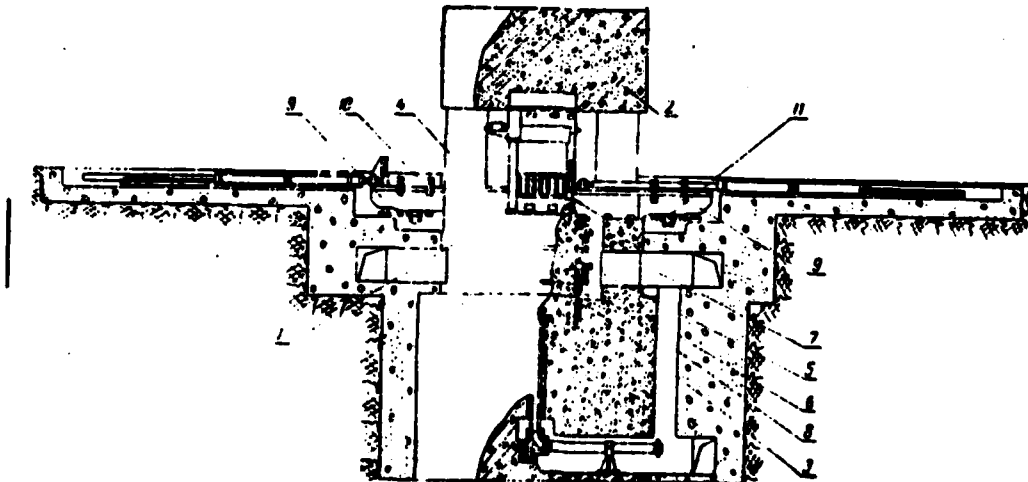
walls of the cylinder are compressed, while the longitudinal reinforcement remains stressed.

This press design also combines the functions of the force-applying (plunger) and working components into a single component.

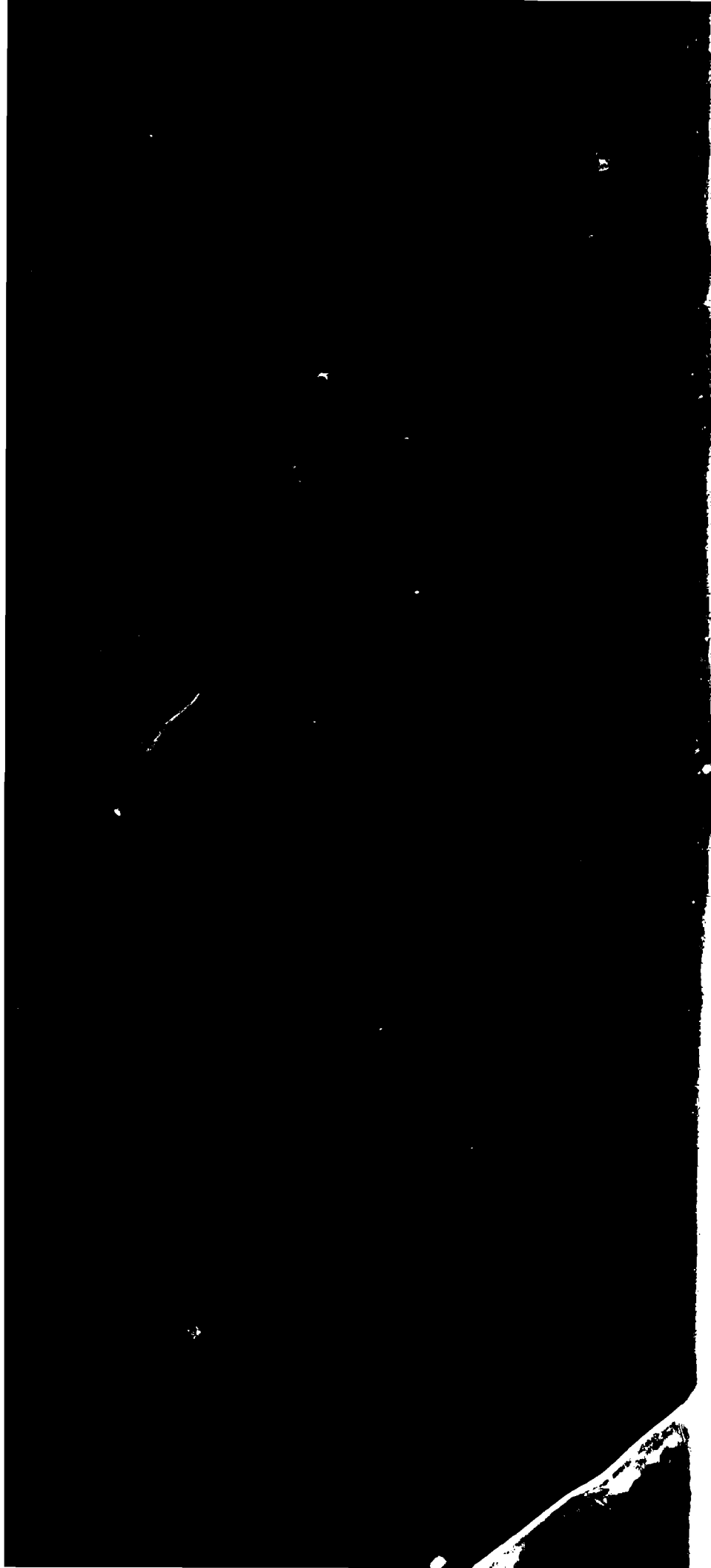
#### Patent Claims

1. A heavy-duty hydraulic stamping press with a stressed reinforced concrete frame integrated with the hydraulic cylinder and the functions of the force applying and working components combine into a single component distinguished by the fact that, with the objective of reducing the metal required to build a press and of increasing the convenience of assembly, the plunger is fabricated of four prestressed reinforced concrete bolted together.

2. A press design is described in par. 1 distinguished by the fact that, with the objective of accelerating the assembly process, it incorporates a brace connected to the plunger to stress by the latter the vertical reinforcement of the press in the process of testing it.







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