



HARMONIZED SYSTEM
COMMITTEE

-
26th Session
-

NC0317E1

O. Eng.

Brussels, 10 October 2000.

CLASSIFICATION OF CERTAIN FORGINGS FOR CRANK SHAFTS

(Item VIII.9 on Agenda)

I. BACKGROUND

1. On 11 September 2000, the Secretariat received the following Note from the US Administration concerning the classification of certain forgings for crank shafts. The US Administration has requested that the Secretariat put this question on the Agenda for the 26th Session of the Harmonized System Committee.

II. NOTE FROM THE US ADMINISTRATION ON THE CLASSIFICATION OF CERTAIN FORGINGS FOR CRANK SHAFTS

2. The US Administration has for some time been considering the classification of certain "blanks" under the Harmonized System. The blanks in question are forgings, not further worked, which have the recognizable shape of crank shafts. In order to seek clarification and uniformity, the US Administration submits the classification of these articles to the Harmonized System Committee for consideration and decision.
3. Since these articles have the essential character of crank shafts, GIR 2(a) would appear to direct classification of these forgings in heading 84.83. See the comments in the General Explanatory Note to this rule. However, it has been argued that these articles are "semi-finished products, which have been roughly shaped by forging" within the meaning of Note 1 (ij) to Chapter 72.

Product Description

4. The product is an alloy steel forging of a crank shaft for a diesel engine and is sometimes described as a "blank" for a crank shaft. The forging is shaped into the form of a crank shaft by a closed-die forging process. The forging possesses the shape of a crank shaft, is clearly recognizable as a crank shaft and can only be processed into a finished crank shaft. It does not require further working or shaping by forging. Rather, the further

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working essentially involves machining operations to bring the surfaces into tolerances required for a finished crank shaft.

5. Prior to presentation the forging is subjected to minor operations. The ends are milled to facilitate secure clamping in a machine tool and locator points for center mass are machined into the ends in order to facilitate positioning and handling in various machine tools. It is also subjected to a shot blasting process in order to remove scale from the surface of the forging.¹ No shaping or forming is performed on the forging. Photographs of the forging are included in the Annex.
6. Although the forging has the shape of the finished product, it does require certain machining operations and certain heat treatments before completion into a finished crank shaft. Machining is performed on all surfaces by grinders, lathes or drills. This machining removes approximately 8.5 mm to 10 mm from most of the surfaces and may remove up to one-third of the thickness from certain other surfaces.

Classification Question

7. The Committee is asked to decide whether the closed-die crank shaft forging, described above, is a "semi-finished" product that is "roughly shaped by forging" within the meaning of Note 1 (ij) to Chapter 72.

Discussion and Analysis

8. There appears to be some confusion among importers as to whether the terms of heading 72.24 and Note 1 (ij) to Chapter 72 preclude the application of GIR 2(a) to certain blanks that are made by a forging process and are recognizable as, and only useable for, crank shafts.
9. This confusion arises, in part, from the reference in Note 1 (ij) to Chapter 72 to certain "blanks." Some have interpreted the reference as applying to all blanks, even those which are recognizable as final articles, if they have not been further worked.
10. Under this interpretation of heading 72.24, pursuant to GIR 1 and Note 1 (ij), the heading 72.24 would include all blanks, provided the other terms of Note 1 (ij) are satisfied. Application of GIR 2(a) would be precluded.
11. The confusion also concerns the meaning of the term "not further worked than ...roughly shaped by forging" in Note 1 (ij) to Chapter 72. Some have interpreted this phrase as applying to all forgings which have not been machined or otherwise surface worked after forging.
12. Under this interpretation, any forging, no matter how recognizable as a specific article, is a "roughly shaped" product if it is not machined or otherwise finished on any of its surfaces, and, therefore, falls within the terms of Note 1 (ij). Application of GIR 2(a) with respect to incomplete or unfinished articles would be precluded.

¹ These operations would not appear to constitute "further working" within the meaning of Note 1 (ij) because they do not constitute operations to form, fashion or shape the article to a greater extent. These processes are incidental to, and preparatory to the further working by which the shape and final dimension are obtained. They are not intended to shape or form the article.

(a) Note 1 (ij) to Chapter 72 and Blanks

13. The first question concerns the scope of the reference to "blanks" contained in the Note. We are of the view that, by its terms, Note 1 (ij) does not include all blanks.
14. Note 1 (ij) defines "semi-finished products" as including, in addition to certain continuous cast products, other products of solid section not further worked than (a) subjected to primary hot rolling or (b) roughly shaped by forging. Included within these two categories of products are "blanks for angles, shapes or sections." The legal text is very specific. It does not refer to all blanks. It refers only to blanks of certain products which, in their finished condition, would also be classifiable in Chapter 72. We believe that the reference to these specific blanks is very significant. The specific inclusion of blanks for angles, shapes or sections operates as a limited exception to the rule that unfinished or incomplete goods, having the essential character of the finished good, are classified in the same heading as the good. It cannot be taken to include all blanks.
15. Therefore, we conclude that the reference to "blanks" in Note 1 (ij) applies only to those named in the Note, i.e., blanks for angles, shapes and sections, and would not apply to other blanks which have the approximate shape or outline of the finished article, i.e., unfinished articles having the essential character of the finished article.

(b) Roughly Shaped by Forging

16. The second question with respect to the terms of Note 1 (ij) concerns the meaning of the phrase "have not been further worked than roughly shaped by forging."
17. The term "roughly shaped by forging" is not defined in the Nomenclature. However, the Explanatory Note to heading 72.07 sheds light on the meaning of the term.
18. In the Explanatory Notes to Heading 72.07, Section (B), on page 1079, semi-finished pieces "roughly shaped by forging" are described as products "of rough appearance and large dimensional tolerances produced from blocks or ingots by the action of power hammers or forging presses." The Explanatory Note, applicable *mutatis mutandis* to goods of heading 72.24, is even more specific as it addresses an example of a flattened zig-zag for a crank shaft as a piece roughly shaped by forging:

(B) PIECES ROUGHLY SHAPED BY FORGING

"...They may take the form of crude recognisable shapes in order that the final article can be fabricated without excessive waste, but the heading covers **only** those pieces which require considerable further shaping in the forge, press, lathe, etc. The heading would, for example, cover an ingot roughly hammered into the shape of a flattened zigzag and requiring further shaping to produce a marine crankshaft, but it would **not cover** a crankshaft forging ready for final machining. The heading similarly **excludes** drop forgings and pressings produced by forging between matrices since the articles produced by these operations are ready for final machining.

19. The forging in issue is made from a billet (a semi-finished product of heading 72.24) or bar stock (a finished product of heading 72.27 or 72.28) by a closed-die process between matrices and is clearly recognizable as crank shaft. Notwithstanding the fact that machining operations must be performed in order to finish the forging, the machining would not appear to be the type of "considerable further shaping" as described in the Explanatory Notes.

Rather, it appears to consist of "finishing" operations in which the identifiable journals and faces are machined to tolerance and balance.

20. Therefore, we would conclude that the crank shaft forging is not a "roughly shaped forging" for purposes of Note 1 (ij) to Chapter 72.
21. Since Note 1 (ij) to Chapter 72 is not applicable, it is clear that the foregoing articles are not semi-finished products of heading 72.24.

(c) GIR 2(a) and Relevant EN

22. The forging is recognizable as a crank shaft. Crank shafts are specifically named in heading 84.83. Under Rule 2(a), a heading shall be taken to include a reference to that article incomplete or unfinished provided that the incomplete or unfinished article has the essential character of the complete or finished article. Explanatory Note (11) to GIR 2(a), at page 2, describes certain unfinished articles as "blanks" which are classified in the heading for the article. The crank shaft forging, in this case, appears to be described in that Explanatory Note as a blank :

(II) The provisions of this Rule also apply to blanks unless these are specified in a particular heading. The term " blank " means an article, not ready for direct use, having the approximate shape or outline of the finished article or part, and which can only be used, other than in exceptional cases, for completion into the finished article or part (e.g., bottle preforms of plastics being intermediate products having tubular shape, with one closed end and one open end threaded to secure a screw type closure, the portion below the threaded end being intended to be expanded to a desired size and shape).

23. Therefore, we would conclude that this crank shaft forging is properly classified in heading 84.83 as a crank shaft.

Conclusion

24. The closed-die crank shaft forging (sometimes described as a blank) is an unfinished crank shaft and is classifiable in heading 84.83 by operation of GIR 2(a) and Note 1 (f) to Section XV. Note 1 (ij) to Chapter 72 is inapplicable.

Annex

25. Photographs of closed-die crank shaft forgings, finished crank shafts and roughly shaped forging for marine crank shaft :
- 1.A. Crank shaft forging showing light machining on flange end to facilitate handling by a machine tool.
 - 1.B. Crank shaft forging showing drilled point (for center mass) on nose end to facilitate handling by a machine tool.
 - 1.C. Crank shaft forging showing light facing on flange end and drilling of locator points for center mass on flange end and nose end
 - 2.A. Finished Crank Shafts
 - 2.B. Finished Crank Shafts

- 2.C. Comparison of finished crank shaft and unfinished crank shaft forging
3. Comparison of finished crank shafts and crank shaft forging
4. Picture of a roughly shaped forging (zig-zag) for a marine crank shaft taken from Custom Forging Capability Guide, published by Forging Industry Association, Cleveland, Ohio 44115-1040.

III. SECRETARIAT COMMENTS

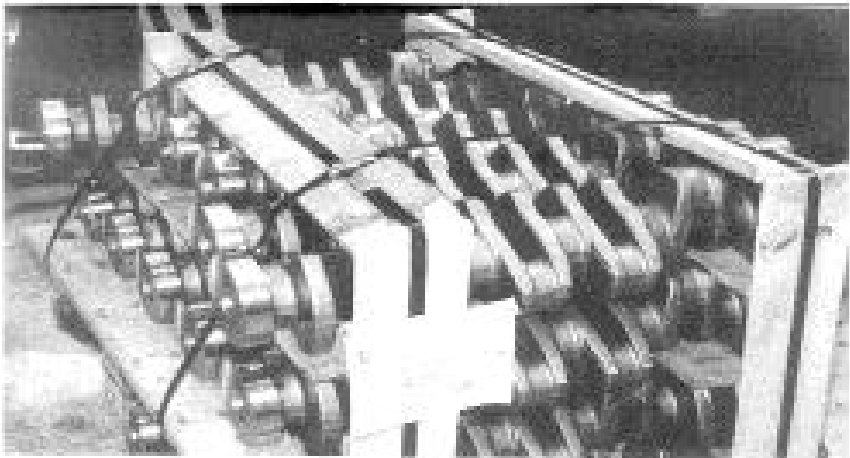
26. As previously noted, one interpretation for the reference to blanks in Note 1 (ij) to Chapter 72 would be that it applies to all blanks, even those which are recognizable as final articles, if they have not been further worked. In Doc. 24.240, the CEC proposed a definition for semi-finished products, which included the phrase "blanks for angles, for shapes and for sections". Paragraph 43 of that document reads "it was understood that the CEC proposal regarding blanks is based on the fact that the blanks concerned are products of industry sectors different from those which produce the finished articles. On the other hand the classification of all recognizable blanks with the corresponding finished articles, as suggested by the Japanese Administration, would probably simplify the application of the Nomenclature in this respect. A decision on these opposing views must be left to the members of the Committee and its Working Party."
27. As the phrase "blanks for angles, shapes or sections" is contained in the present Note 1 (ij), the Secretariat understands that the Committee agreed with the CEC's view over the Japanese view. Based on the aforementioned, the Secretariat is of the opinion that it cannot be taken to include all blanks. The specific inclusion in this Note of blanks for angles, shapes or sections operates as a limited exception to the rule that unfinished or incomplete goods, having the essential character of the finished good, are classified in the same heading as the good. Therefore, the Secretariat agrees with the US Administration's conclusion in paragraph 15 that the "blanks" mentioned in Note 1 (ij) do not apply to all blanks and, as a result, would not apply to other blanks which have the approximate shape or outline of the finished article, i.e., unfinished articles having the essential character of the finished article.
28. Regarding the meaning of the phrase "have not been further worked than roughly shaped by forging" in Note 1 (ij), the Explanatory Notes to heading 72.07, Section (B), on page 1079, provide some guidance on the interpretation of this term. The crank shaft forgings at issue require machining operations that would not, in the Secretariat's opinion, be classed as "considerable further shaping", as described in the aforementioned Explanatory Note. The crank shaft forgings do not require further shaping or hammering but appear to be ready for final machining. Consequently, the Secretariat would conclude that the crank shaft forgings are not "roughly shaped forgings" for purposes of Note 1 (ij) to Chapter 72.
29. Based on the conclusions in paragraphs 26 and 27, the Secretariat would conclude that the crank shaft forgings are not semi-finished products of heading 72.24.
30. The Secretariat would conclude that the closed-die crank shaft forgings (sometimes described as blanks) are an unfinished crank shafts and are classifiable in heading 84.83 by application of GIR 2(a) and Note 1 (f) to Section XV. Note 1 (ij) to Chapter 72 would not apply.

IV. CONCLUSION

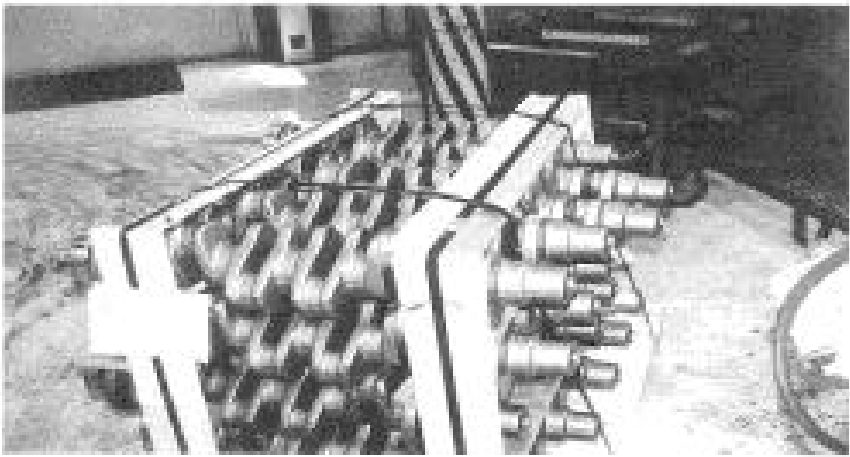
31. The Committee is invited to rule on the classification of the closed-die crank shaft forgings at issue, taking into account the Note from US Administration in paragraphs 2 to 25 and the Secretariat's comments in paragraphs 26 to 29, respectively.

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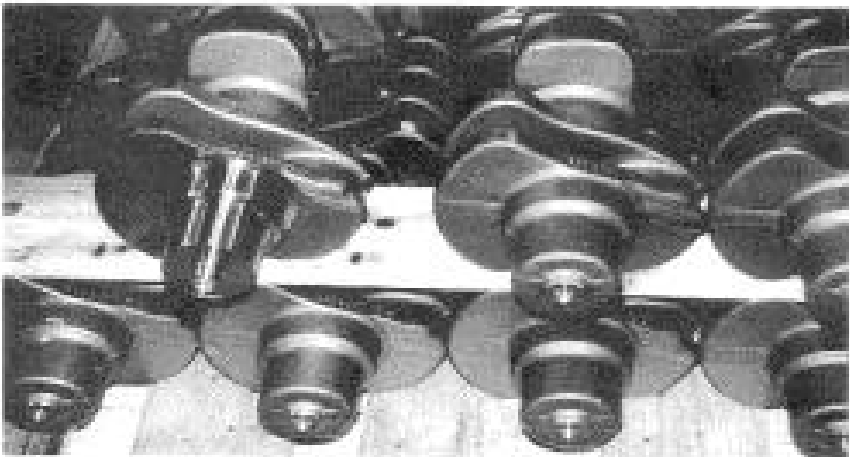
1.A



1.B

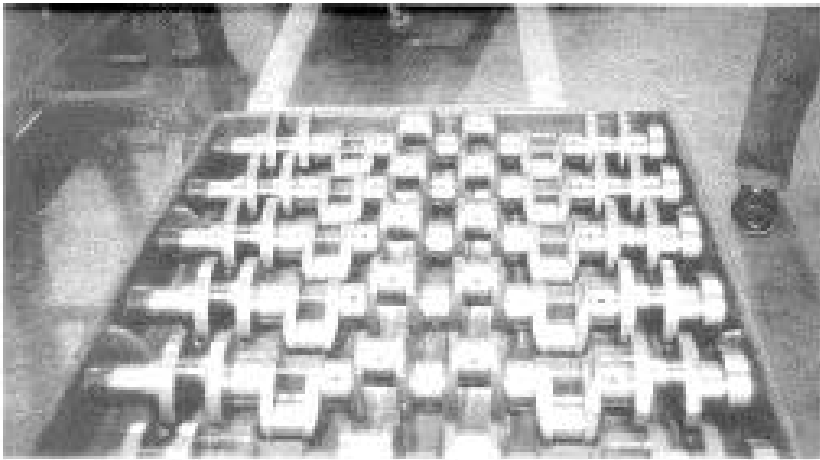


1.C

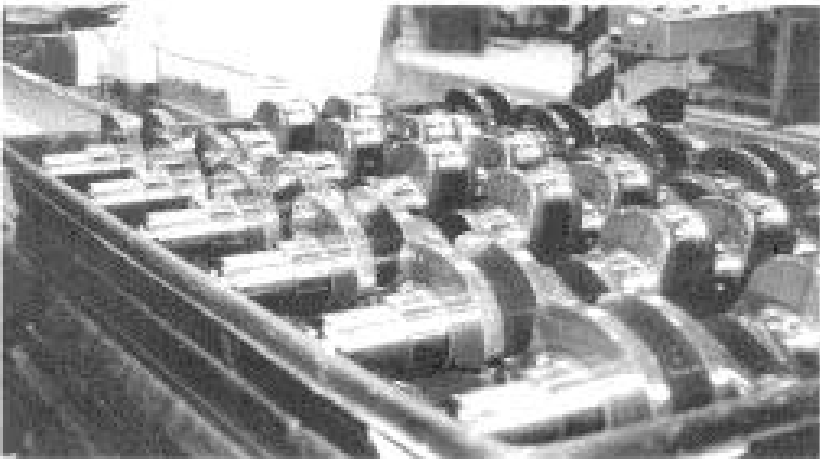


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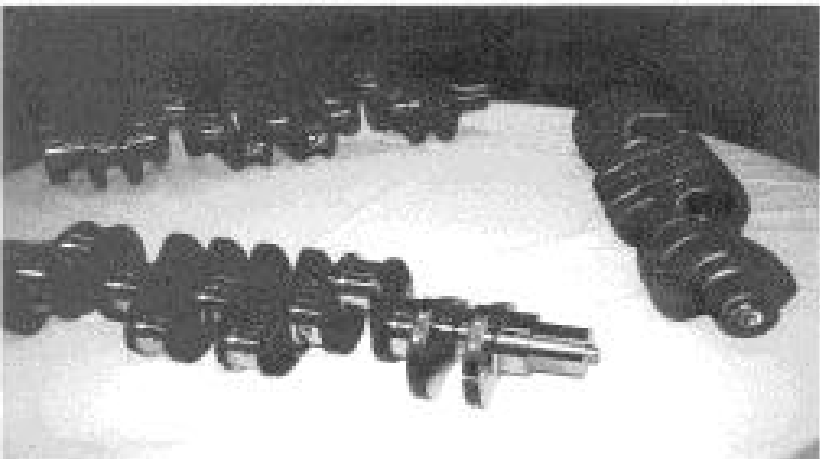
2.A



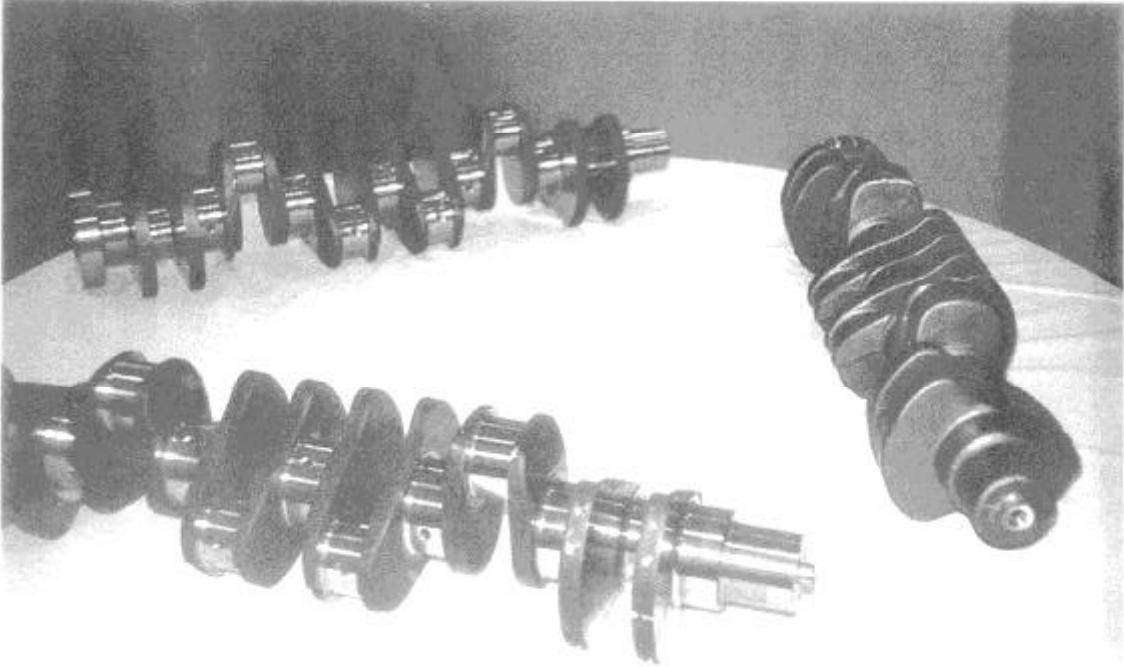
2.B



2.C



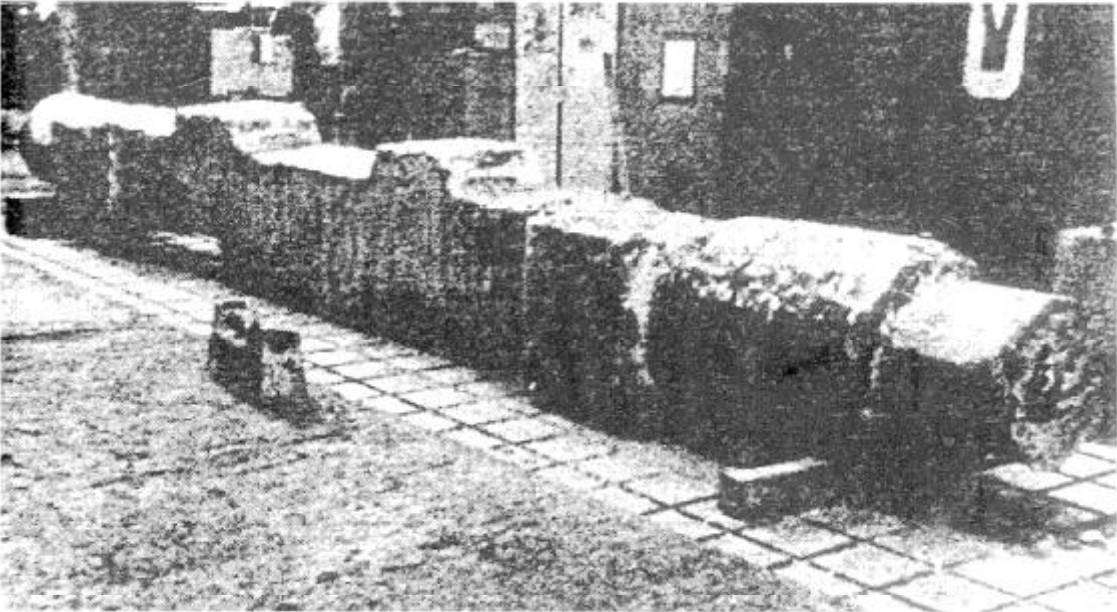
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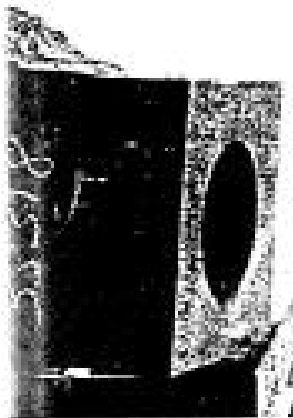
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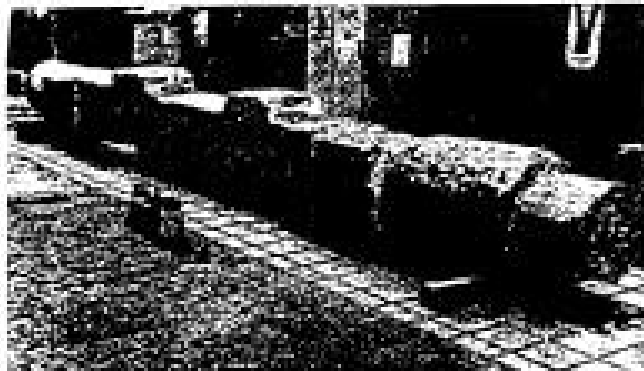


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metal shells like
als, which may incor-
ed nozzles and other
es.



Not unlike successive forging operations in a sequence of dies, multiple open-die forging operations can be combined to produce the required shape. At the same time, these forging methods can be tailored to attain the proper amount of total deformation and optimum grain-flow structure, thereby maximizing property enhancement and ultimate performance for a particular application. Forging an integral gear blank and hub, for example, may entail multiple drawing or solid forging operations, then upsetting. Similarly, blanks for rings may be prepared by upsetting an ingot, then piercing the center, prior to forging the ring.



7/10/97 A EXAMPLE OF
OPEN DIE FORGED
CRANKSHAFT
FOR MARINE
APPLICATION

NOTE: EXTENSIVE
FURTHER MACHINING
NEEDED TO FINISH