

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NICHOLAS T. GIHL
and JOHN R. SKACH

Appeal No. 95-1352
Application 07/804,010¹

ON BRIEF

MAILED

MAR 11 1996

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Before THOMAS, BARRETT and FLEMING, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final rejection of claims 1 to 33 which constitute all the claims in the application.

¹ Application for patent filed December 9, 1991.

Appeal No. 95-1352
Application 07/804,010

Representative claim 1 is reproduced below:

1. In a programmable logic controller (PLC) for implementing primary functions of an operating system, wherein operating program instructions are stored in said PLC and include a first label field and a second comment field, wherein said primary functions implement control functions of said system, the improvement comprising a program for said PLC wherein said first label field includes first instructions for implementing said primary functions in said operating system and said second comment field includes second instructions for implementing secondary functions relating to non-control functions in said operating system:

first memory means for storing a predetermined syntax in said PLC;

further memory means for storing a series of secondary function instruction in said second comment field associated with a given first label field in said PLC;

means for comparing said secondary function instructions with said predetermined syntax; and

means for generating a rung file represented programming commands for said PLC if said secondary function instructions include said predetermined syntax;

wherein said rung file is stored in said PLC for programming the operation of said PLC.

The following references are relied on by the examiner:

| | | |
|--------------------------|-----------|-----------------------|
| Struger et al. (Struger) | 4,200,915 | Apr. 29, 1980 |
| Gihl | 5,097,470 | Mar. 17, 1992 |
| | | (filed Feb. 13, 1990) |
| Smith et al. (Smith) | 5,204,960 | Apr. 20, 1993 |
| | | (filed Jan. 8, 1990) |

Appeal No. 95-1352
Application 07/804,010

As expressed in the final rejection, the following rejections form the basis of this appeal. Claims 1 to 33 stand rejected under 35 USC 112, second paragraph, as being indefinite. The same claims stand rejected under 35 USC 112, first paragraph, for failing to provide an enabling disclosure.

All claims 1 to 33 stand rejected under 35 USC 103 as being obvious over the collective teachings of Gihl and Smith. An additional, separate rejection under 35 USC 103, has been made by the examiner of claim 17 as being obvious over the collective teachings of Gihl in view of Struger.

Rather than repeat the positions of the appellants and the examiner, reference is made to the Briefs and the Answers for the respective details thereof.

OPINION

Turning first to the rejection of claims 1 to 33 under 35 USC 112, second paragraph, it is to be noted that to comply with the requirements of the cited paragraph, a claim must set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in light of the disclosure and the teachings of the prior art as it would be by the artisan. Note In re Johnson, 558 F.2d 1008, 194 USPQ 187 (CCPA 1977) and In re Moore, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).

Appeal No. 95-1352
Application 07/804,010

We have reviewed the examiner's reasons in support of the rejection, but are not convinced that the cited claims fail to comply with the second paragraph of 35 USC 112. Our own study of the disclosure and understanding of the PLC art in general, as well as that specific art relied upon by the examiner leads us to conclude that within the noted standard of review just set forth in the last paragraph, the artisan would have had no difficulty in interpreting the respective claims in light of the disclosure and what he or she knows is in the prior art. Thus, we conclude that the appellants have set forth language in the claims with a reasonable degree of precision and particularity when read in light of the disclosure and the teachings of the prior art as it would be by the artisan.

In the broader perspective, the disclosed and the claimed invention relates to data structure modifications from that which has been known in the prior art. The functional nature of apparatus claim 1 and the hybrid nature of method-apparatus claim 18 does not add any ambiguity to the artisan in our view, since the essence of the disclosed invention is set forth in some degree of specificity in these claims. The particular form of the claims, whether method or apparatus or somewhat hybrid in nature, would not in any manner deceive the artisan as to what is really being claimed, particularly in light

Appeal No. 95-1352
Application 07/804,010

of what he or she knows of the art and in light of the disclosed invention.

Accordingly, the rejection of claims 1 to 33 under 35 USC 112, second paragraph, must be reversed.

To comply with the enablement clause of the first paragraph of 35 USC 112, the disclosure must adequately describe the claimed invention so that the artisan could practice it without undue experimentation. In re Scarbrough, 500 F.2d 560, 182 USPQ 298 (CCPA 1974); In re Brandstadter, 484 F.2d 1395, 179 USPQ 286 (CCPA 1973); and In re Gay, 309 F.2d 768, 135 USPQ 311 (CCPA 1962). If the examiner had a reasonable basis for questioning the sufficiency of the disclosure, the burden shifted to the appellants to come forward with evidence to rebut this challenge. In re Doyle, 482 F.2d 1385, 179 USPQ 227 (CCPA 1973); In re Brown, 477 F.2d 946, 177 USPQ 691 (CCPA 1973); and In re Ghiron, 442 F.2d 985, 169 USPQ 723 (CCPA 1971). However, the burden was initially upon the examiner to establish a reasonable basis for questioning the adequacy of the disclosure. In re Angstradt, 537 F.2d 498, 190 USPQ 214 (CCPA 1976); and In re Armbruster, 512 F.2d 676, 185 USPQ 152 (CCPA 1975).

With respect to the rejection of claims 1 to 33 under the enablement portion of the first paragraph of 35 USC 112, we must also reverse this rejection. When considering the merits of the positions advocated by the examiner and the appellants

Appeal No. 95-1352
Application 07/804,010

between the Answers and the Briefs, we conclude that some experimentation, but not an undue amount of experimentation, would have been necessary by the artisan with which to implement the claimed invention. The form of the written description portion of the disclosed invention and the total lack of any figure which depicts the claimed data structure and how it would be implemented by circuit elements leads us to conclude that some experimentation would have been necessary for the artisan to have implemented or enabled the claimed invention. The written description portion of the specification is highly functional in nature and relies to a high degree upon knowledge of the artisan in the field, which approach is permitted within a proper analysis of the statutory provision. The artisan's overview is reflected in appellants' background assessment of the specification as filed.

What is significant to us is that page 21, line 10 to page 22, line 2 identifies a specific model of the prior art programmable logic controller (square D model 600 processor) used as the basis to implement the embodiment of the disclosed invention. A better approach would have been to emphasize in detail the disclosure as to this aspect and how the concept of the disclosure modifies the existing structure of this known PLC. Appellants make use of the shared common memory registers in this prior art processor which inherently include a processor for

Appeal No. 95-1352
Application 07/804,010

implementing control functions of the machine to be controlled as well as being inclusive of a separate, diagnostic processor as noted at page 21, line 16. It is the diagnostic processor which separately performs the functions associated with the disclosed comment field. This feature should have been emphasized in the disclosure but was not. This capability is only detailed at page 2 of the Reply Brief.

In part, the examiner's position appears to be based upon a lack of consideration of the disclosed invention from the artisan's point of view as is required for a proper determination of the issue. The examiner's positions that there is no disclosure about processing alarms or keeping track of an event to determine whether it has occurred within an time interval are misplaced. The discussion of the EXPECT keyword as discussed beginning in the middle of page 13 through various examples in the remaining portions of the specification clearly indicate that certain events within the normal operation of a programmable logic controller must occur within specified time intervals or an alarm or diagnostic condition would be noted and the operator informed. There is a substantial discussion of alarm messages to the operator in the remaining portion of the specification as well.

Appeal No. 95-1352
Application 07/804,010

Therefore, the rejection of claims 1 to 33 under the enablement portion of the first paragraph of 35 USC 112 must be reversed.

Turning next to the rejection of claims 1 to 33 under 35 USC 103 in light of the collective teachings of Gihl in view of Smith, we sustain this rejection only as it applies to claims 18 to 33.

Claim 1 on appeal recites that the operating program instructions include a first label field and a second comment field, where the first label field includes first instructions for carrying out primary functions in the operating system and said second comment field includes second instructions for implementing secondary functions relating to non control functions in the operating system. The memory recited in this claim stores a series of secondary function instructions in said second comment field associated with a given first label field. We construe these limitations as associating a first label field with a second comment field for each instruction.

Similarly, claim 17 recites in part "an instruction." The claim goes on to recite that "said instruction" is divided into a label field containing an operating instruction and a comment field.

Appeal No. 95-1352
Application 07/804,010

We will not sustain the rejection of claims 1 to 17 under 35 USC 103 in light of Smith and Gihl for two reasons. One, appellant's prior patent, Gihl as relied upon by the examiner in this rejection, does not directly teach of secondary instructions associated with comment fields or label fields *per se*. It does, however, as the examiner asserts, teach clearly that the passive diagnostic instructions may exist according to the parallel architecture arrangement generally set forth in Figure 1 of this reference. As to Smith, we do not construe the examiner's reliance upon claim 2 of Smith, which recites in part that the comment fields in an object file may be added and be full of blanks for permitting additional object code to be added, would have taught to the artisan that blank portions of comment fields contain additional instructions to be added to an object field. This approach is not verified by an understanding of the remaining teachings of Smith relating to comment fields at column 4, lines 14 to 59 and column 8, line 4 to column 10, line 15. As we generally construe these teachings, comment fields are added to an instruction stream to permit additional object code to be added as needed in the object file *per se* and not in the comment field. In this sense then, the combined teachings would not have met the limitations noted earlier with respect to independent claims 1 and 17.

Appeal No. 95-1352
Application 07/804,010

Additionally, however, even if we were to construe the teachings of Smith in a manner most favorable to the examiner's arguments, we would also reverse the rejection simply because we find no rationale or teaching or suggestion or motivation for the artisan to have modified the architecture and diagnostic instruction teachings of Gihl in light of Smith. Gihl's remote I/O interface circuit 30 and the main CPU 34 and RAM mailbox 32 operate in parallel with respect to the normal operation of PLC 14 to monitor and diagnose the normal series of instructions to the respective I/O modular 16. Elements 30, 32 and 34 in Gihl operate independently of the normal operation of PLC 14 and its operating system 12. Thus, we do not see that the artisan would have found any need to modify the architecture in normal system operation of Gihl in light of Smith.

We reach an opposite conclusion with respect to independent claims 18 and 19. Claim 18 does not recite a given instruction having a first field and a second field. As the examiner construes this claim, it simply requires different first fields and a second fields which are analogous to first and second different types of instructions. Their operation in a "time relationship" says very little as recited in claim 18 simply because such a broad recitation merely reflects that they will be operated upon before or during or contemporaneously with respect to each other. According to the operation of Gihl, it is

Appeal No. 95-1352
Application 07/804,010

clear as recited earlier that Gihl's circuits 30, 32 and 34 operate in parallel with and independently of the operating system 12 and its PLC 14. Thus, the examiner is correct in construing the operation of the diagnostic instructions as secondary type instructions in a second field operating in a broadly defined "time relationship" with respect to the normal operating instructions in the operating system of PLC 14 to control the respective I/O modular 16.

As to claim 19, this claim recites relationships of the first field and the second comment field in a manner similar to claim 18 and recites that the PLC simultaneously carry out the functions of both the respective primary and secondary fields. Again, because of the substantially simultaneous, independent operation of the diagnostic or secondary instructions in Gihl, they are seen as to operate in a manner meeting the recitations of claim 19 even though they are not part of the same instruction. Again it is emphasized that claims 18 and 19 do not appear to us to recite any given instruction having a first label field and a second comment field in the same instruction. The separate operating instructions and diagnostic instructions in Gihl clearly meet these limitations.

Since appellants' Brief indicates that arguments are made only with respect to the independent claims as they apply to the art rejections, and due to the fact that no arguments are

Appeal No. 95-1352
Application 07/804,010

presented with respect to any of the dependent claims depending from independent method claim 19, these claims will all fall with that claim. Note In re Nielson, 816 F.2d 1567, 2 USPQ2d 1525 (Fed. Cir. 1987); In re Kaslow, 707 F.2d 1366, 217 USPQ 1089 (Fed. Cir. 1983); In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979).

Although we have essentially agreed with many a positions advocated by appellants with respect to the rejection of claims 1 to 33 as a whole in light of the collective teachings of Smith and Gihl, the arguments do not particularize the different features of the respective independent claims as we have done so here. The type of association recited in independent claims 1 and 17, which are more like the disclosed invention of well known label and comment fields for a single instruction, this feature is not reflected in independent claims 18 and 19.

Turning lastly to the rejection of 17 under 35 USC 103 in light of the collective teachings of Gihl and Struger, we agree with appellant that this rejection cannot be sustained. As indicated earlier, claim 17 recites "an instruction" where "said instruction" is divided into a label field containing an operating instruction and a comment field. None of the teachings in Struger or Gihl relate to this primary, basic recitation. We do not agree with the examiner's assertion that the claim recites

Appeal No. 95-1352
Application 07/804,010

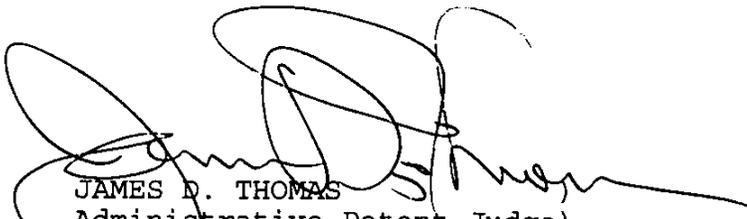
generating a rung file representing two different sets of instructions and loading the file into the PLC. Claim 17 goes on to recite that a secondary function is attributed to the comment field where that function is not involved with the control of the machine and where a rung file is generated representing secondary function programming commands for the PLC. In our view, there is no teaching or suggestion to the artisan or persuasive line of reasoning advanced by the examiner as to the basic recitation in this claim that a secondary command function may be attributed to or found in a comment field associated with a label field of a single instruction. Thus, the rejection of claim 17 under 35 USC 103 in light of Gihl and Struger must be reversed.

In view of the foregoing, we have reversed the rejections of claims 1 to 33 under 35 USC 112 first and second paragraphs. On the other hand, we have sustained the rejection of claims 1 to 33 under 35 USC 103 only as to claims 18 to 33. Therefore, the decision of the examiner is affirmed-in-part.

Appeal No. 95-1352
Application 07/804,010

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a).

AFFIRMED-IN-PART



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Administrative Patent Judge)



LEE E. BARRETT
Administrative Patent Judge)



MICHAEL R. FLEMING
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Appeal No. 95-1352
Application 07/804,010

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