

program executes Phase 1 for this manuscript material. In step 1304 the program asks if any additional manuscript titles are available for validation. If yes, the program loops back to step 1302.

If the answer in step 1304 is no, step 1306 then asks whether a manuscript is ready for imaging, that is to say, to be printed. If no, the program loops through the program until such is ready and moves to Phase 2 to execute the imaging operations. If yes, the program images the available manuscript title by processing in Phase 2 of Node 4. At the completion of Phase 2, the program in step 1308 checks if there are any other manuscript titles available for printing. If so, the program loops back to Phase 2.

Again, as those skilled in the art will appreciate and as further explained above in the PFU overview, running the Node 4 program with the same manuscript title file on multiple "sister clones" of Master Publication Format will yield multiple sets of finished camera-ready color separation art in perfect register with each other.

NODE 4 PHASE 1 PROGRAM (FIG. 14)

Node 4 phase 1 program 1400 basically confirms the availability of manuscripts to print or image, that all codes in the manuscript match codes contained in the predetermined "Master Publication Format", and that all external files required for merging with the manuscript title are available. Program 1400 enters at step 1402 which attempts to load the oldest available and completed Node 2 "Manuscript Title File." Step 1404 then asks whether a manuscript title has been loaded, that is, available to process.

If the answer in step 1404 is no, step 1406 continues to poll for available titles until the operator stops the process. In such an event, step 1408 alerts the operator at Node 2 by way of an InterNode Mail message that no manuscript titles are available for processing. The program then ends. If the operator does not stop the operation in step 1406, the program loops back to step 1402 when a manuscript title becomes available.

If the answer in step 1404 is yes, step 1410 loads and verifies the customer-chosen "Master Publication Format (PFU) file" with the codes contained within the text of the loaded Manuscript Title file. In this way, the attribute and entity codes are verified as valid.

Step 1412 then asks whether the codes match. If no, step 1414 alerts the operator to resolve the inconsistencies by way of an InterNode message to computer 18 (Node 2). The program then ends.

If the answer in step 1412 is yes, step 1416 attempts to verify the existence of all external page file path names, and of all graphic and filler text path names found in the Manuscript Title File. Step 1418 then asks whether the required path names to the external files exist. If no, step 1420 alerts the operator at Node 2 computer 18 to resolve the problem. The program then ends.

If the answer in step 1418 is yes, this file is marked as ready for imaging, and the program loops back to step 1402 to process or validate the next available manuscript title. When all manuscript titles have been processed, the program returns by way of the operator alert at step 1408.

NODE 4 PHASE 2 PROGRAM (FIGS. 15A-B)

In general, phase 2 program 1500 images the publication for printing by confirming and loading the specific "Master Publication Format File." This program enters at step 1502 which asks whether any manuscript titles

are ready for imaging or printing. If no, the program moves to step 1504 which continues to poll for available manuscript titles until stopped by the operator, and alerts the operator at Node 2 and sounds of a continuous tone in step 1506 if no manuscripts are available. The program then ends. If a manuscript becomes available for imaging during step 1504, the program loops back to step 1502.

If manuscripts are available, the answer in step 1502 is yes, and step 1508 selects the oldest manuscript title for imaging and loads the PFU Master Publication Format File as selected by the customer associated with this publication. Step 1510 asks whether the "PFU Master Publication Format File printer page setup" matches the current printer setup. If no, step 1512 alerts the operator at Node 2 to resolve this problem and the program ends.

In the answer in step 1510 is yes, step 1514 matches the publication codes used on the currently selected "page" being imaged with the correct "Master Page Format" from within the "PFU Master Publication Format File." Step 1516 then verifies the availability of all "PFU Master Page" graphic files, increments the pagination counter, processes any selected index(es) and table(s) of content page information in memory, removes all publication codes from the data, and finally processes all text through the hyphenation dictionary.

Step 1518 then creates a new blank page and then "flows" all sequential text, dedicated and optional graphics, and optional text onto this page. The page is then imaged and saved for future printing.

Step 1520 then asks whether any more pages remain to be imaged. If yes, step 1522 selects the next page for processing. The program then loops back to step 1514 and continues to do so until no more pages remain to be imaged.

When all the pages have been imaged, step 1524 (FIG. 15B) images the table of contents and all selected indices for the publication according to the instructions contained in the PFU Master Publication Format File. This step also sorts the imaged pages in printing order and sends the first page to the printer.

Step 1526 then asks whether any imaged pages remain to be printed. If yes, step 1528 then asks whether any printer problems exist. If no, the next page is printed in step 1530 and the program loops back to step 1526. If printing problems have been encountered, if the answer in step 1528 is yes, step 1532 then alerts the operator at Node 2 computer 18, and the program loops back to step 1528. If the answer in step 1526 is no, the program loops back to step 1502 (FIG. 15A) to begin Phase 2 for another manuscript title, if available.

As those skilled in the art will appreciate, the present invention encompasses many variations in the preferred embodiment described herein. For example, each computer can perform more than one stage of processing operations and additionally, if production volumes justify, more than one computer can be used for each stage.

Having thus described the preferred embodiment of the present invention, the following is claimed as new and desired to be secured by Letters Patent:

1. A method of imaging a publication composed of manuscript material such as text and graphics, said method comprising the steps of:

defining in a computer system the structure of a publication to be imaged to include a plurality of identifiable entities associable with manuscript material