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(54) **PROJECT BOARD GAME PROCESS**

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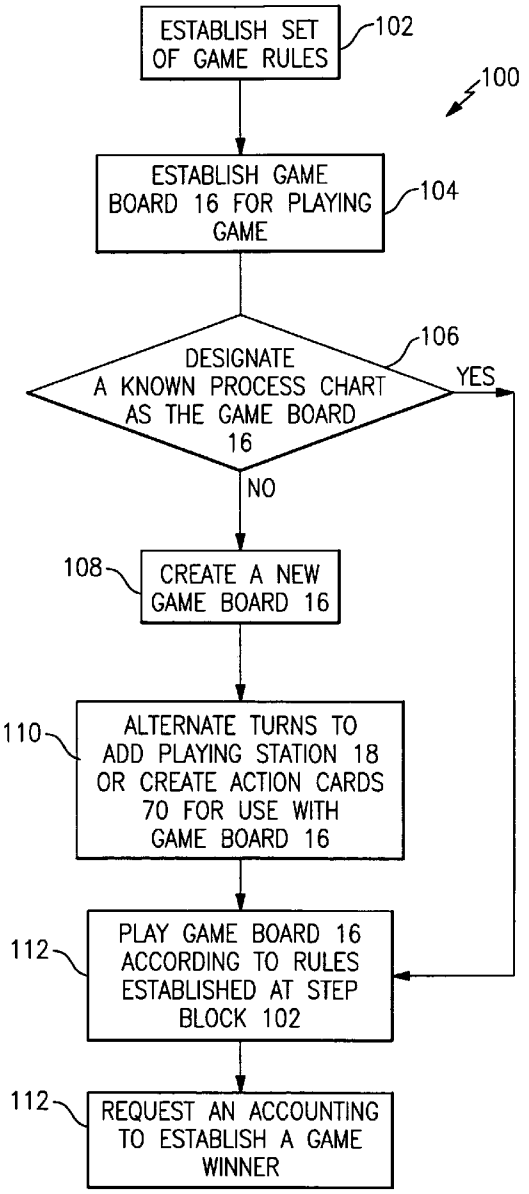
(57) **ABSTRACT**

An example method for modeling a process as a game includes establishing a set of game rules, establishing a game board and analyzing a process by playing the game board in accordance with the established game rules. In one example, a known process chart is designated as the game board. In another example, the game board is established by alternating turns between each of a plurality of players. Each of the plurality of players navigate playing stations of the game board to analyze the process modeled by the game board.



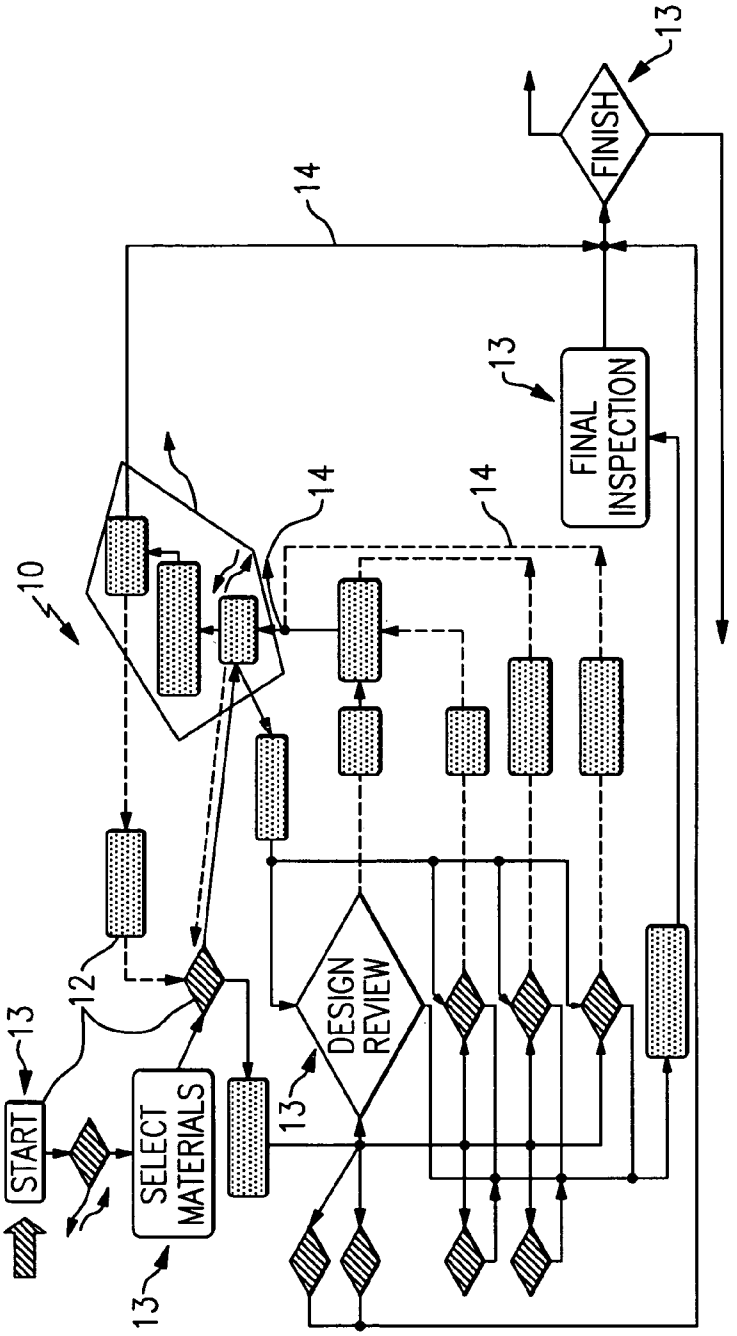

START
SELECT MATERIALS
DESIGN REVIEW
FINAL INSPECTION
FINISH
10
12
13
14

FIG.1

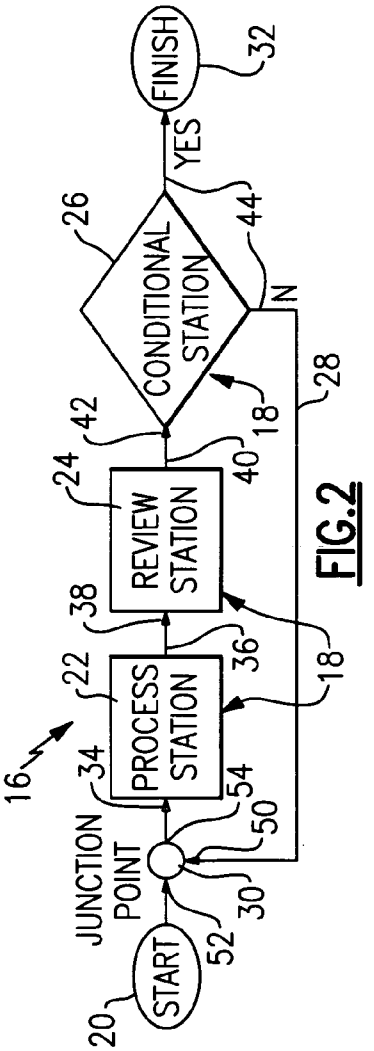

START
JUNCTION POINT
PROCESS STATION
REVIEW STATION
CONDITIONAL STATION
FINISH
YES
N
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
50
52
54

FIG.2

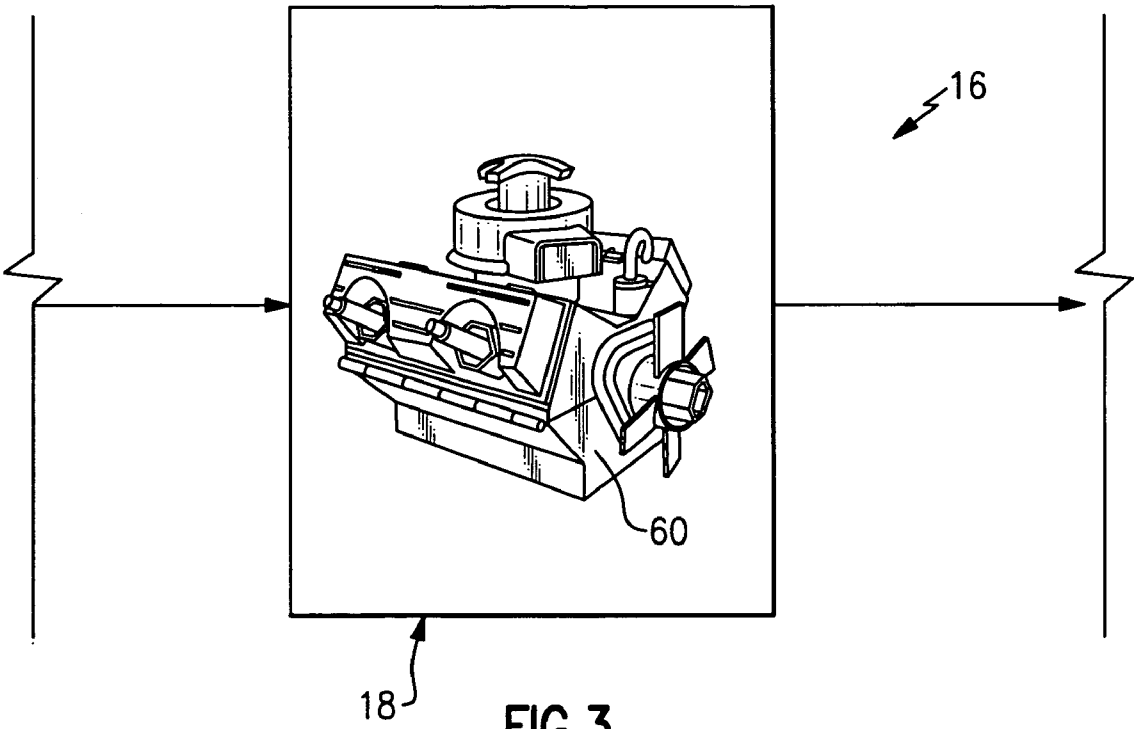


FIG.3

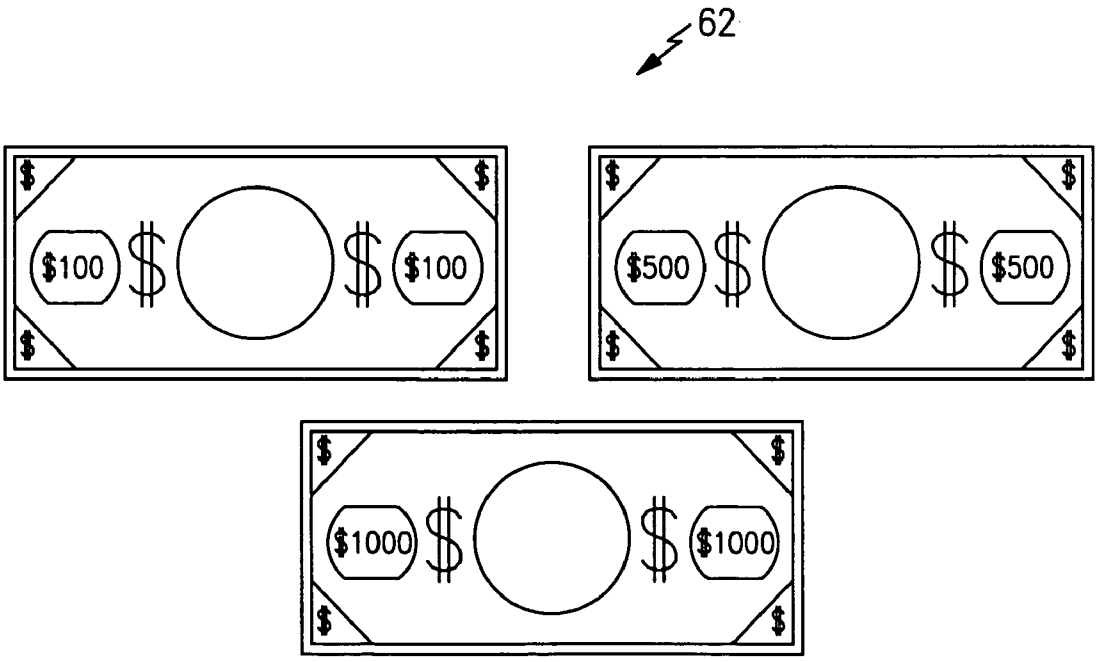


FIG.4

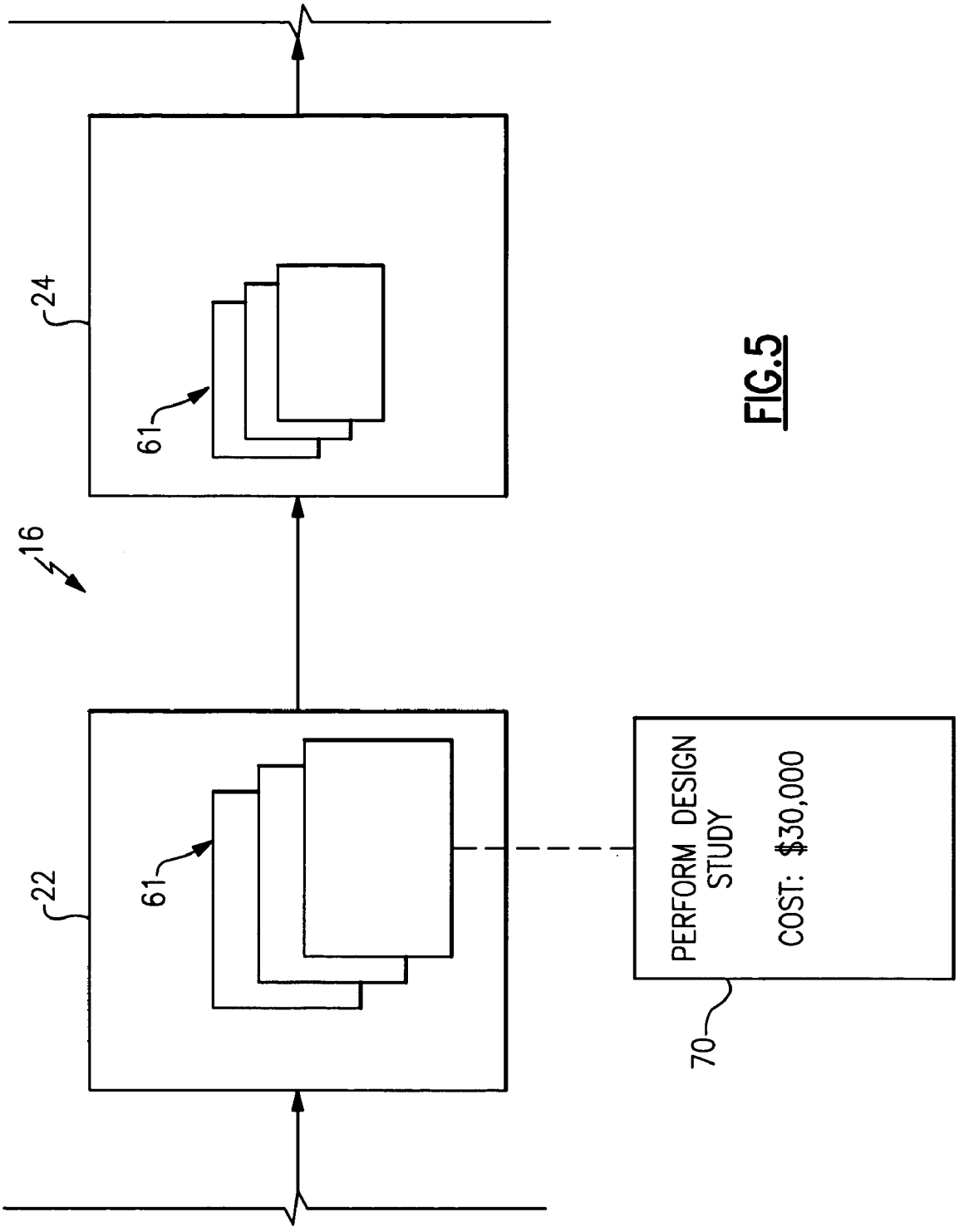


FIG.5

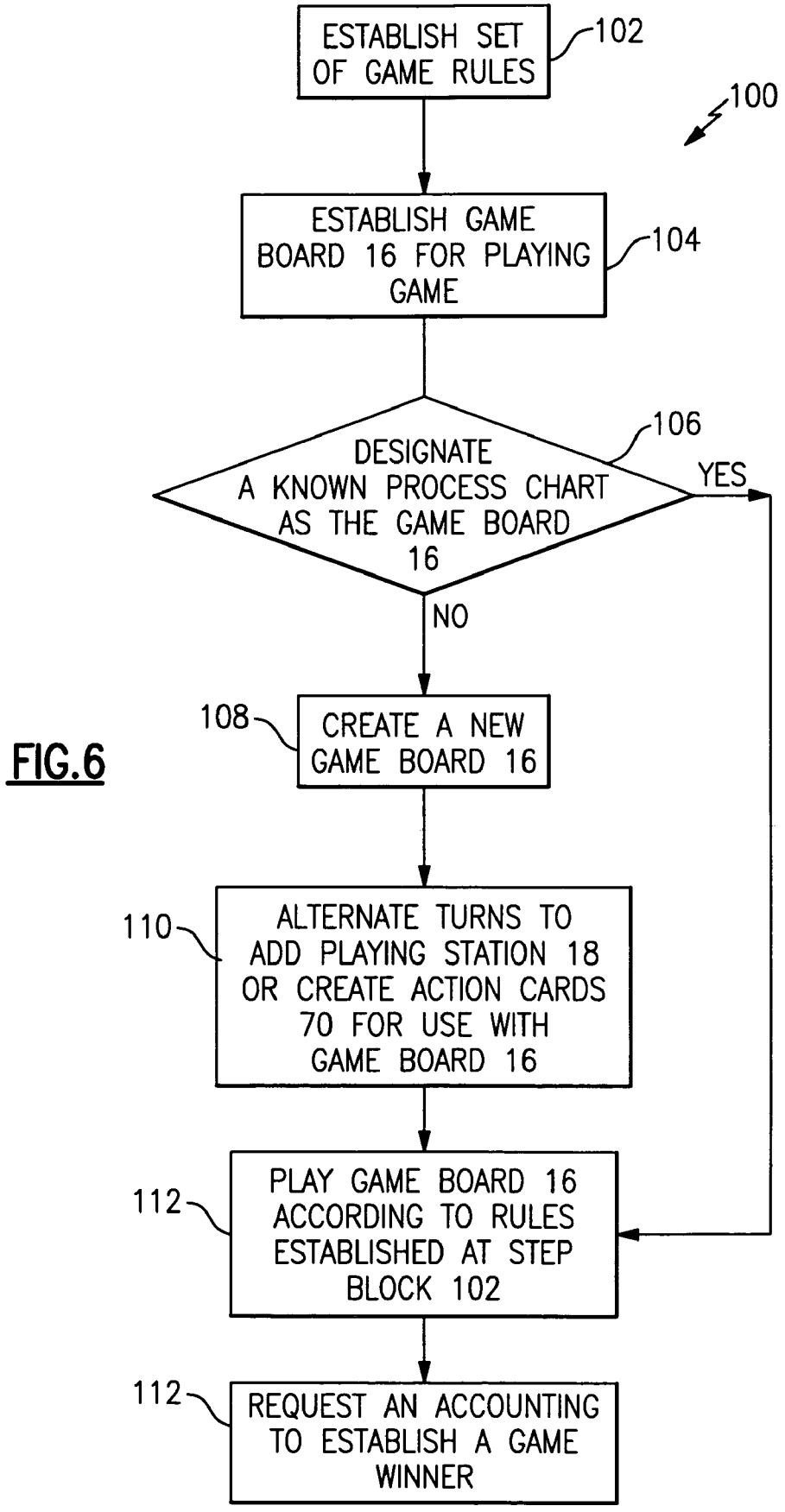

ESTABLISH SET OF GAME RULES
102
100
ESTABLISH GAME BOARD 16 FOR PLAYING GAME
104
DESIGNATE A KNOWN PROCESS CHART AS THE GAME BOARD 16
106
YES
NO
108
CREATE A NEW GAME BOARD 16
110
ALTERNATE TURNS TO ADD PLAYING STATION 18 OR CREATE ACTION CARDS 70 FOR USE WITH GAME BOARD 16
112
PLAY GAME BOARD 16 ACCORDING TO RULES ESTABLISHED AT STEP BLOCK 102
112
REQUEST AN ACCOUNTING TO ESTABLISH A GAME WINNER

FIG.6

PROJECT BOARD GAME PROCESS

BACKGROUND OF THE INVENTION

[0001] This invention generally relates to process improvement, and more particularly to a method of modeling a process as a game.

[0002] The use of process charts to model processes is known. For example, engineering processes are typically mapped out in process charts to illustrate and document the numerous resources, equipment, and other requirements needed to complete a particular project. The process chart includes a plurality of process stations linked together by a plurality of flow path arrows to illustrate the flow of a process from a start station to a finish station. Each process station corresponds to an instruction or step involved in completion of the process modeled by the process chart.

[0003] Engineering processes often include inherent cyclic problems which decrease the efficiency and reliability of a process. Therefore, large amounts of resources are often expended to improve existing engineering processes and the process charts that model these engineering processes. For example, many corporations utilize standard work exercises to improve engineering processes and process charts. Standard work exercises represent the standards and procedures a company uses to simplify and structure its processes to ensure maximum quality, productivity and repeatability over time. Disadvantageously, documenting the standard work may be a daunting and time consuming project due to the massive amounts of information required to be displayed in the form of a process chart. In addition, it may be difficult to identify certain information for documenting the standard work.

[0004] Educational games which test the knowledge of employees and provide a continuing education mechanism for professionals in various fields are known. However, these educational games are often repetitive such that they provide little value after the first play. In addition, no known educational game for creating and improving standard work exercises is known.

[0005] Accordingly, it is desirable to provide an educational board game for the creation and improvement of process charts that is challenging and flexible and that provides an improved manner of analyzing and documenting standard work.

SUMMARY OF THE INVENTION

[0006] An example method for modeling a process as a game includes establishing a set of game rules, establishing a game board and analyzing a process by playing the game board in accordance with the established game rules. In one example, a known process chart is designated as the game board.

[0007] In another example, the game board is established by alternating turns between each of a plurality of players. Each alternate turn consists of adding a playing station to the game board, removing a playing station from the game board or creating an action card associated with each of the playing stations of the game board.

[0008] Each of the plurality of players alternate turns to navigate the playing stations of the game board. The plurality of players navigate between a start station and a finish station of the game board. An accounting is requested once a player reaches the finish station to establish a winning player of the game.

[0009] The various features and advantages of this invention will become apparent to those skilled in the art from the following detailed description. The drawings that accompany the detailed description can be briefly described as follows.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** illustrates an example process chart for modeling a process;

[0011] FIG. **2** illustrates an example game board for modeling a process according to the present invention to illustrate fundamental stations;

[0012] FIG. **3** is an example game piece for use with the game board of the present invention;

[0013] FIG. **4** is a simulated currency for playing the game board of the present invention;

[0014] FIG. **5** illustrates a set of action cards associated with the game board of the present invention; and

[0015] FIG. **6** illustrates an example method for modeling a process by playing a game according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Referring to FIG. **1**, a process chart **10** for schematically representing a process is illustrated. Process charts, such as the process chart **10**, may be used to model the steps involved in the completion of virtually any activity or situation. Although the present invention is shown and described herein in terms of an engineering process, it should be understood that any other process whose steps can be mapped in chart form may be utilized in accordance with the present invention.

[0017] The process chart **10** includes a plurality of process stations **12** which are linked together by a plurality of flow path arrows **14** to define a given process. Each of the plurality of process stations **12** generally include a set of instructions **13** which inform of the manner the process chart **10** is navigated to achieve a desired result. The flow path arrows **14** provide further support for navigating through each process station **12**. That is, the flow path arrows **14** link each process station **12** and schematically demonstrate the order that each instruction **13** represented by the process stations **12** is to be followed.

[0018] A process, such as the process modeled by process chart **10** in FIG. **1**, may be created and/or modified as a game, as is further discussed below. "Game" is used throughout the present disclosure in the sense of game theory. Game theory is the study of decision making in situations where strategic interaction occurs between rivals. A person of ordinary skill in the art would be able to apply various game theory definitions to either create a new process or modify an existing process as a game according to the teachings of the present invention.

[0019] Referring to FIG. **2**, an example game board **16** for modeling a process, such as an engineering process, is illustrated. The game board **16** includes a plurality of playing stations **18**. The example game board **16** is illustrated as one of trivial complexity. That is, the example game board **16** shown in FIG. **2** includes the minimal number of

playing stations **18** required to play a game according to the present invention. The game board **16** must include at least one start station **20**, at least one process station **22**, at least one review station **24**, at least one conditional station **26**, at least one feedback loop **28**, at least one junction point **30**, and at least one finish station **32** to be utilized to improve or create a process according to the present invention. It should be understood that the stations **20-32** are the minimal required elements for the game board **16**. A worker of ordinary skill in the art would understand that a game board **16** for modeling a complex process may include an infinite number of playing stations **18**.

[0020] The start station **20** represents the beginning of the process being modeled and therefore the beginning of the game board **16**. Each process station **22** represents a position of the game board **16** where an activity is accomplished. For example, a product design activity may be accomplished at the process station **22**. The process station **22** may be positioned at any location on the game board. That is, there is no preferred location for positioning each process station **22**. Each process station **22** includes a single input flow path arrow **34** and a single output flow path arrow **36**. That is, the arrival at a process station **22** and the completion of an activity associated with that process station **22** may be accomplished only by a single criterion.

[0021] Each review station **24** represents a period within a process in which judgment is rendered against a specific criterion. For example, the review station **24** may require passing a design review. As with the process station **22**, there is no preferred location or required sequence for the review station **24** relative to the game board **16**. The review station **24** includes a single input flow path arrow **38** and a single output flow path arrow **40** such that each activity associated with each review station **24** may be accomplished only by a single criterion.

[0022] Each conditional station **26** represents a position on the game board **16** where a specific condition must be met to continue along the flow path to the next sequential playing station **18**. For example, the conditional station **26** may require the passing of a quality review. If the quality review is failed, an alternate flow path is forced. The conditional station **26** has at least one input flow path arrow **42** and at least two output flow path arrows **44** that provide alternate paths in the case of a failed condition. In addition, there is no preferred location or required sequence relative to the game board **16** for the conditional station **26**, except that a conditional station **26** must be positioned prior to the finish station **32** of the game board **16**.

[0023] The feedback loop **28** connects the finish station **32** to the junction point **30** of the game board **16**. If the game board **16** includes a plurality of junction points **30**, the feedback loop **28** may be used to connect the finish station **32** to any of the junction points **30** of the game board **16**. Additional playing stations **18** may be positioned within the feedback loop **28** to provide additional playing stations **18** and define the flow path return to the junction point **30**. The junction point **30** has at least two input flow path arrows **50** and **52** and only a single output flow path arrow **54**.

[0024] Referring to FIG. **3**, an example game piece **60** for navigating the plurality of playing stations **18** of the game board **16** is illustrated. The game pieces **60** mark a location of a player on the game board **16**. In one example, the game piece **60** is a plastic model engine. However, any other coin or marker may be substituted as the game piece **60** of the present invention. The game pieces **60** are identifiable by a color or marking. For example, each player's game piece **60** may include a different color.

[0025] In addition, the game pieces **60** identify a staff member type and a wage rate. For example, a game piece **60** having a specific color or marking may identify a contract engineer having a wage rate of $50.00 per hour. A second game piece **60** having another color or marking may signify a staff engineer having a wage rate of $75.00 per hour. A third game piece **60** may identify a senior engineer having a wage rate of $100.00 per hour. A fourth game piece **60** may signify a consultant having a wage rate of $150.00 per hour. It should be understood that the game pieces **60** for practicing the present invention may identify any number of staff members and wage rates associated with those staff members.

[0026] Referring to FIG. **4**, a simulated currency **62** is illustrated. The simulated currency **62** preferably includes a plurality of varying denominations of currency. For example, the simulated currency **62** may include denominations of $100, $500 and $1,000. It should be understood that the simulated currency **62** may include any dollar denomination. The simulated currency **62** is used to pay for costs encountered while playing the game which are associated with the process stations **22**, the review stations **24** and the conditional stations **26**. The simulated currency **62** is also used to hire staff members of various types which are represented by the game pieces **60** used to navigate the game board **16**. In addition, the simulated currency **62** is also used to purchase materials, overheads and other expenses that are incurred during the course of navigating the game board **16**.

[0027] Referring to FIG. **5**, at least one action card **70** is associated with each process station **22** and review station **24** of the game board **16**. In one example, each conditional station **26** includes action cards **70**. An action card **70** is selected from a card deck **61** when a game piece **60** lands on one of the process station **22**, the review station **24**, or the conditional station **26**. The action cards **70** include an instruction that must be completed prior to proceeding to a subsequent playing station **18** of the game board **16**. For example, an action card **70** may require a design study to be performed on a specific product and require the player to pay a specific amount of simulated currency **62** to perform the study. There is no required number of action cards **70** associated with each of the playing stations **18** of the game board **16**. After an action card **70** is used, the action card **70** is returned to the bottom of the card deck **61** from which it was drawn.

[0028] Referring to FIG. **6**, and with continuing reference to FIGS. **1** through **5**, a method **100** for modeling a process by playing a game is illustrated. At step block **102**, as set of game rules are established by a plurality of players who wish to participate in a game for modeling a process. At least two players are required to play the game according to the present invention. The game rules define the manner in which the game will be played. In one example, establishing the set of game rules includes creating a set of process goals for either modeling a new process or improving an existing process. For example, reducing the number of steps of the process may be established as a process goal. In addition, an initial amount of simulated currency **62** that each player receives for playing the game is established. In one example, each player estimates the amount of simulated currency **62** they predict will be needed to complete the process mapped

by the game board **16**. In this way, the players develop accurate estimating skills, gain insight into the process, and improve management practices by playing the game according to the present invention.

[0029] The set of game rules may also consist of associating the plurality of game pieces **60** with both a staff member type and a wage rate associated with each staff member type. In another example, the set of game rules are flexible and may be modified as new situations arise during the play of the game board **16**. That is, the rules of play themselves may be altered by the players. The set of game rules are established by a consensus of the players. It should be understood that any rule, such as the number of rounds to be played, the size of the game board **16**, and the order of play, may be established as part of the set of game rules.

[0030] Next, at step block **104**, the game board **16** for modeling a process as a game is established. At this step, players may proceed in one of two ways.

[0031] First, as shown in step block **106**, a known process chart may be designated as the game board **16**. That is, the players select a known process chart for making an existing product, such as a process chart that models the manufacturing process for building an engine, and agree to use this process chart for playing the game.

[0032] Second, as shown in step block **108**, if the players do not wish to utilize a known process chart for the game board **16**, the game board **16** may be created by the plurality of players. Each of the plurality of players alternate turns to establish the game board **16**. At step block **110**, each of the plurality of players alternates turns to either add a playing station **18** to the game board **16**, remove a playing station **18** from the game board **16** or create an action card **70** that is associated with each of the playing stations **18** of the game board **16**. During a player's respective turn, any of the playing stations **18**, including but not limited to the process station **22**, the review station **24** or the conditional station **26** may be added to or removed from the game board **16**. In addition, the players utilize the flow path arrows **44** to connect the playing station **18** created at step block **110** to surrounding playing stations **18**.

[0033] Each of the plurality of players may also utilize their respective turn to create a new action card **70**. The player writes the action to be completed and the cost or rate associated with that action on the action card **70** and adds it to the set of action cards **70** associated with each playing station **18**. There is no limit to the number of action cards **70** that are associated with each playing station **18**; however, each action card **70** must be appropriate to the playing station **18**. That is, the action card **70** must be related to the process step which is modeled by the playing station **18**. It will be appreciated by those skilled in the art that step block **110** is essentially a brainstorming system for either creating a process or improving an existing process. In this way, significant insight into the process being modeled by the game board **16** is gained by each player participating in the game. No accounting is made at this stage as the object at this point of the game is to establish the game board **16**.

[0034] Some players may be tempted to set up traps within the game board **16** so that other players find it difficult to navigate the playing stations **18** of the game board **16**. However, the influence on play is felt when the player realizes that any trap set must also be navigated by that player. The tendency to establish traps on the game board **16** is therefore offset by this realization. The ultimate goal is to make the game board as realistic as possible to truly model a process. In addition, any player participating in the game may remove any playing station **18** or action card **70** which is determined to be disagreeable or unfair according to a majority vote.

[0035] Next, at step block **112**, and regardless of whether an existing process chart is utilized as the game board **16** or a new process chart in created as the game board **16**, the process chart modeled by the game board **16** is played according to the game rules established in step block **102**. The process chart modeled by the game board **16** is analyzed by alternating turns between each of the plurality of players to navigate the playing stations **18** of the game board between the start station **20** and the finish station **32**. The navigation of the playing stations **18** is accomplished by moving a player's game pieces **60**. Each move on the game board **16** entails a cost of some type to the player who performs the move, which is further discussed below.

[0036] In one example, the game board **16** is played as a series of moves alternating between each of the plurality of players. Each player assumes the role of a chief engineer in charge of the project modeled by the game board **16**. Each of the plurality of players has several of the game pieces **60** at their disposal which represent that player's staff members. Each staff member has a different level of ability and therefore a different wage rate. In one example, the staff members are hired to perform actions associated with the process modeled by the game board **16**. As stated above with respect to FIG. **3**, each game piece **60** is associated with one of the staff member types and a wage rate for that respective staff member.

[0037] After landing on a playing station **18** and drawing the action card **70** associated with that playing station **18**, the player must allocate members of their staff to perform the instructions included on the action card **70**. The staff member's salary must then be paid out from each of the player's amount of simulated currency **62**. In one example, one of the plurality of players is designated as head of a program office and collects the simulated currency **62** as transactions are performed on the game board **16**. In addition, each of the plurality of players may exchange their staff members with other player's staff members and may hire out their own staff members for a fixed amount of simulated currency **62**. In yet another example, a player may obtain a loan of an additional amount of simulated currency **62** from the program office. As can be appreciated by those persons of skill in the art, and since there is a fixed amount of both staff members and simulated currency **62** on the game board **16**, an internal economy (i.e. distribution of scarce resources) is automatically imputed onto the players during play of the game. Therefore, a player's project management skills are improved by participating in the game according to the present invention.

[0038] In some instances, the player may be unable to perform the instructions included on the action card **70** associated with the playing station **18** the player presently occupies (i.e. the player has come to an impasse on the game board **16**). For example, the player may have a limited amount of simulated currency **62**. Therefore, the turn may be utilized to create a new action card **70** with a more beneficial instruction contained thereon. In this way, the player's turn does not cost the player any simulated currency **62** but does

cost the player a chance to proceed to the next playing station **18** (i.e. each move is considered a symbolic passage of time).

[0039] In addition, the game board **16** may be altered during the course to play by adding or removing playing stations **18**. For example, one player may call a fault in the process logic of the game board **16** during play. By consensus, the remaining players could then either agree or disagree to add or remove a playing station **18** to the game board **16** to improve the process associated with the game board **16**. By allowing the players to change the layout of the game board **16** as an integral action during the course of the game, the process is improved in a timely and efficient manner.

[0040] Play on the game board **16** proceeds in this manner as each player attempts to navigate the game board one playing station **18** at a time. The game ends at step block **114** where all of a player's staff members reach the finish station **32** and the player calls for an accounting. Once a player calls for an accounting, each of the other players is permitted to finish their round.

[0041] The accounting performed at the end of the game represents the manner of score keeping and establishes the game winner. The accounting is a sum of three factors: GOOD, FAST and CHEAP. GOOD represents a tally of accomplishments less the number of incomplete action items. The accomplishments represent the fixed number of playing stations **18** for a particular process modeled by game board **16**. The action items accrue through acquiring action cards **70** while navigating the playing stations **18** of the game board **16**. Holding an action card **70** at the end of the game counts against the player according to the cost listed on the action card **70**.

[0042] FAST measures each player's moves as a symbolic passage of unit time. Each time a move is made salaries for staff members must be paid to the program office depending upon the number and types of staff members that each player employs. Time is thus accounted for in the spending of the simulated currency **62** during navigation of the playing stations **18** of the game board **16**.

[0043] CHEAP represents a tally of the amount of simulated currency **62** a player has at the end of game play compared to the amount of simulated currency **62** requested by each player at the beginning of game play. The object is to spend the initial amount of funding without the need to borrow additional amounts during the course of game play. In addition, any surplus of simulated currency **62** which a player has at the finish of the game is counted against that player. Consistent with usual corporate practice, this punishes underspending as well as overspending and rewards accurate budget predictions. In corporate practice, underspenders usually experience budget cuts in subsequent years.

[0044] Therefore, the player with the lowest sum of GOOD, FAST and CHEAP factors wins the game. The player with the lowest sum of these factors is the player who best estimates the amount of initial simulated currency **62** for navigating the game board **16**. The present invention therefore provides simple and effective job training to the players of the game which improves project estimation and project management capabilities. For example, at the end of the game cycle, players may discuss the results and possible improvements to the process. Playing the game according to the present invention also provides an improved manner of analyzing and documenting standard work.

[0045] The foregoing description shall be interpreted as illustrative and not in a limiting sense. A worker of ordinary skill in the art would recognize that certain modifications would come within the scope of this invention. For that reason, the following claims should be studied to determine the true scope and content of this invention.

What is claimed is:

1. A method of modeling a process by playing a game, comprising the steps of:
- (a) establishing a set of game rules;
- (b) establishing a game board;
- (c) analyzing a process by playing the game board established in said step (b) in accordance with the game rules established in said step (a).

2. The method as recited in claim **1**, wherein said step (a) comprises:
- requesting an initial amount of simulated currency for playing the game board.

3. The method as recited in claim **1**, wherein said step (a) comprises
- associating each of a plurality of game pieces with a staff member type and a wage rate.

4. The method as recited in claim **1**, wherein said step (a) comprises:
- establishing a set of process goals for improving the process.

5. The method as recited in claim **1**, wherein said step (b) comprises:
- designating a known process chart for making an existing product as the game board.

6. The method as recited in claim **1**, wherein said step (b) comprises:
- alternating turns between each of a plurality of players to establish the game board.

7. The method as recited in claim **6**, wherein each of the alternating turns comprises performing at least one of the steps of:
- adding a playing station to the game board;
- removing a playing station from the game board; and
- creating an action card associated with each of the playing stations of the game board.

8. The method as recited in claim **1**, wherein said step (c) comprises:
- alternating turns between each of the plurality of players to navigate the game board.

9. The method as recited in claim **8**, wherein said step of navigating the game board comprises navigating between a start station and a finish station.

10. The method as recited in claim **8**, wherein said step (c) comprises:
- selecting at least one action card; and
- performing an instruction associated with the at least one action card.

11. The method as recited in claim **8**, wherein said step (c) comprises at least one of:
- creating a new action card during the playing of the game;
- adding a playing station to the game board during the playing of the game; and
- removing a playing station from the game board during the playing of the game.

12. The method as recited in claim **1**, further comprising step of:

(d) requesting an accounting to establish a winning player of the game.

13. The method as recited in claim **12**, wherein said step (d) further comprises:

tallying a sum of at least three factors to determine the winning player of the game, wherein the at least three factors include GOOD, FAST and CHEAP.

14. The method as recited in claim **1**, wherein the process comprises an engineering process.

15. An educational game for engineers, comprising:

a game board having at least one start station, at least one process station; at least one review station, at least conditional station, at least one feedback loop, at least one junction point and at least one finish station;

a plurality of game pieces for marking a playing location on said game board, wherein said plurality of game pieces represent an employee type and a wage rate;

a simulated currency; and

at least one set of action cards associated with each of said at least one process station, said at least one review station and said at least one conditional station.

16. The educational game as recited in claim **15** further comprising a plurality of flow path arrows connecting each of said at least one start station, said at least one process station, said at least one review station, said at least one conditional station, said at least one junction point and said at least one finish station to define a process chart.

17. The educational game as recited in claim **16**, wherein said process chart comprises an engineering process chart.

18. The educational game as recited in claim **15**, wherein said at least one set of action cards includes a plurality of actions cards each having an action instruction and a cost associated with said action instruction.

19. The educational game as recited in claim **15**, further comprising a score keeping system including at least three factors to establish a game winner, a sum of said at least three factors being tallied to determine said game winner, wherein said at least three factors include GOOD, FAST and CHEAP.

20. The educational game as recited in claim **15**, wherein said game board is established by alternating turns between each of a plurality of players.

* * * * *