Claims

[Claim 1] A protocol chart creation device configured to create a protocol chart for describing a process for a specimen, comprising:

an initial symbol arrangement unit configured to arrange an initial symbol representing an initial state of a container for containing the specimen;

a procedure line arrangement unit configured to arrange a procedure line representing a process order for the container in a direction along a first axis from the initial symbol;

a process symbol arrangement unit configured to arrange a process symbol representing a process to be carried out on the container along the procedure line, and to arrange, when there are a plurality of processes to be carried out on one container, the process symbols representing the plurality of processes along the procedure line; and

a separation unit configured to separate arrangements of the initial symbols, the procedure lines, and the process symbols for different containers in a direction along a second axis intersecting the first axis.

[Claim 2] The protocol chart creation device according to claim 1, wherein the process symbol arrangement unit comprises:

a process determination unit configured to determine whether or not the process to be carried out on the container indicates a change in a capacity of the container; and

an arrangement position setting unit configured to:

set an arrangement position of the process symbol on the procedure line for the container when the process does not indicate a change in the capacity; and

set the arrangement position of the process symbol to a position separated from the procedure line for the container when the process indicates a change in the capacity.

[Claim 3] The protocol chart creation device according to claim 2, further comprising a transfer line arrangement unit configured to arrange, when the process is transfer of the specimen between different containers, a transfer line along the second axis from the procedure line for a container to be a transfer source to the procedure line for a container to be a transfer destination in association with the process symbol representing the process.

[Claim 4] The protocol chart creation device according to claim 3, further comprising a highlight displaying unit configured to highlight, when the transfer line is arranged, at least any one of the process symbol and the procedure line corresponding to the process order before the transfer line for the container to be the transfer source, and at least any one of the process symbol and the procedure line corresponding to the process order after the transfer line for the container to be the transfer destination.

[Claim 5] The protocol chart creation device according to any one of claims 2 to 4, further comprising an addition line

arrangement unit configured to arrange, when the process to be carried out on the container indicates an increase in the capacity of the container, an addition line along the second axis from the process symbol representing the process to the procedure line for the container.

[Claim 6] The protocol chart creation device according to any one of claims 1 to 5, further comprising a number-of-containers symbol arrangement unit configured to arrange a number-of-containers symbol representing that the initial symbol corresponds to a plurality of the containers, in association with the initial symbol.

[Claim 7] The protocol chart creation device according to claim 6, further comprising a second arrangement position setting unit configured to set an arrangement position of the number-of-containers symbol to a position that is based on the initial symbol.

[Claim 8] The protocol chart creation device according to claim 6 or 7, wherein the number-of-containers symbol comprises a number of the corresponding containers.

[Claim 9] The protocol chart creation device according to any one of claims 2 to 5, wherein:

the process determination unit is further configured to determine whether or not the process to be carried out on the

container is a process of transferring the specimen from a first container to a second container and at least any one of the first container and the second container comprises a plurality of containers; and

the protocol chart creation device further comprises a transfer rule symbol arrangement unit configured to arrange, when the process to be carried out on the container is the process of transferring the specimen and at least any one of the first container and the second container comprises a plurality of containers, a transfer rule symbol representing a transfer rule of the specimen to be transferred from the first container to the second container.

[Claim 10] The protocol chart creation device according to claim 9, wherein the transfer rule symbol comprises a number of the first containers and a number of the second containers.

[Claim 11] The protocol chart creation device according to claim 9 or 10, wherein the transfer rule symbol comprises a pictogram representing the transfer rule of the specimen to be transferred from the first container to the second container.

[Claim 12] The protocol chart creation device according to any one of claims 1 to 11, further comprising a parallel process symbol arrangement unit configured to arrange a parallel process symbol representing that, simultaneously in parallel with a first process for one container, a second process for another container is to

be carried out,

wherein the parallel process symbol comprises a symbol representing a section in which the first process and the second process are to be carried out simultaneously in parallel in the direction along the first axis.

[Claim 13] The protocol chart creation device according to claim 12, wherein the parallel process symbol comprises:

a parallel process start point symbol representing a start point of the section in which the first process and the second process are to be carried out simultaneously in parallel; and

a parallel process end point symbol representing an end point of the section.

[Claim 14] The protocol chart creation device according to any one of claims 1 to 13, further comprising an area symbol arrangement unit configured to arrange an area symbol representing an area in which a process for the container is to be carried out, in association with the process symbol representing the process,

wherein the area symbol comprises a symbol representing a section in which the process is to be carried out in a specified work area in the direction along the first axis.

[Claim 15] The protocol chart creation device according to claim 14, wherein the area symbol comprises:

an area start point symbol representing a start point of the section in which the process is to be carried out in the specified

work area; and

an area end point symbol representing an end point of the section.

[Claim 16] The protocol chart creation device according to any one of claims 1 to 10, further comprising a consecutive process symbol arrangement unit configured to arrange a consecutive process symbol that is a symbol representing a section in which processes for a single container are to be carried out consecutively in the direction along the first axis.

[Claim 17] The protocol chart creation device according to claim 16, wherein the consecutive process symbol comprises a frame enclosing the process symbols representing the processes to be carried out consecutively.

[Claim 18] The protocol chart creation device according to any one of claims 1 to 17, further comprising a repetition line arrangement unit configured to arrange a repetition line that branches from the procedure line to extend in the direction along the first axis and reconnects to the procedure line to explicitly represent that the process is to be carried out repeatedly.

[Claim 19] The protocol chart creation device according to any one of claims 1 to 18, wherein the process symbol arrangement unit is further configured to arrange only one process symbol in the direction along the second axis.

[Claim 20] The protocol chart creation device according to any one of claims 1 to 19, further comprising a comment arrangement unit configured to arrange a comment for an arbitrary process symbol included in the protocol chart in association with the arbitrary process symbol.

[Claim 21] The protocol chart creation device according to any one of claims 1 to 20, further comprising a final symbol arrangement unit configured to arrange a final symbol representing a final state of the container at an end part of the procedure line for the container on a side opposite to the initial symbol.

[Claim 22] The protocol chart creation device according to any one of claims 1 to 21, further comprising a tip count unit configured to count a number of tips required for a process described in the protocol chart.

[Claim 23] The protocol chart creation device according to any one of claims 1 to 22, further comprising a number-of-transfers count unit configured to count a number of transfers of the specimen to be carried out in a process described in the protocol chart.

[Claim 24] A computer program for causing a computer to function as the protocol chart creation device of any one of claims 1 to 23.

[Claim 25] A protocol chart creation method for creating a protocol

chart for describing a process for a specimen, comprising:

arranging an initial symbol representing an initial state of a container for containing the specimen;

arranging a procedure line representing a process order for the container in a direction along a first axis from the initial symbol;

arranging a process symbol representing a process to be carried out on the container along the procedure line, and arranging, in the arranging of the process symbol, when there are a plurality of processes to be carried out on one container, the process symbols representing the plurality of processes along the procedure line; and

separating arrangements of the initial symbols, the procedure lines, and the process symbols for different containers in a direction along a second axis intersecting the first axis.

[Claim 26] A protocol chart for describing a process for a specimen, comprising:

an initial symbol arranged in the protocol chart, the initial symbol representing an initial state of a container for containing the specimen;

a procedure line arranged in the protocol chart, the procedure line representing a process order for the container in a direction along a first axis from the initial symbol; and

a process symbol arranged along the procedure line, the process symbol representing a process to be carried out on the container, wherein:

in the arrangement of the process symbol, when there are a plurality of processes to be carried out on one container, the process symbols representing the plurality of processes are arranged along the procedure line; and

arrangements of the initial symbols, the procedure lines, and the process symbols for different containers are separated in a direction along a second axis intersecting the first axis.