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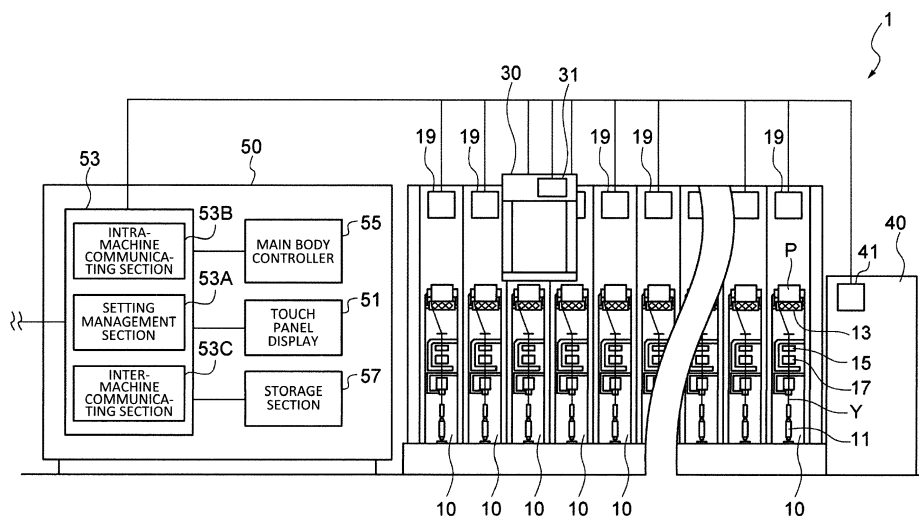
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(54) **TEXTILE MACHINE, TEXTILE MACHINE SYSTEM AND UPDATING METHOD OF SETTING VALUES IN TEXTILE MACHINE**

(57) A management device 50 includes a touch panel display 51 adapted to accept an input of various types of information, a storage section 57 adapted to store setting values, which are accepted via the touch panel display 51, as various processing conditions, an inter-machine communicating section 53C adapted to enable communication with other automatic winder 1, and a setting management section 53A adapted to control the inter-ma-

chine communicating section 53C to transmit the setting values to the other automatic winder 1, and when the input of the setting values is enabled, to control the inter-machine communicating section 53C to transmit input start information, which is information notifying that the input of the setting values is enabled, to the other automatic winder 1.

FIG. 1



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a textile machine, a textile machine system and an updating method of setting values in the textile machine.

2. Description of the Related Art

[0002] There is known a textile machine including a plurality of fiber processing units, and a management device adapted to control operations of the fiber processing units. The management device of the textile machine enables monitoring of current operational status of each of the fiber processing units. Furthermore, the management device of the textile machine is capable of setting various processing conditions (yarn processing conditions). Typically, a large number of the textile machines having such a configuration are installed in a factory. For example, when operating a plurality of the textile machines under a same processing condition or when collectively changing processing conditions, an operator goes to each of the textile machines to set a processing condition or change a setting on a unit-by-unit basis. However, such an operation is not efficient and is a burden to the operator.

[0003] An art to solve such a problem thus has been disclosed. For example, Japanese Patent Application Laid-open No. 2009-242029 discloses a textile machine system in which control devices provided to a textile machine are arranged to be communicable with one another by wireless communication, and a processing condition set in the control device of one textile machine can be transmitted from the control device of the one textile machine to the control devices of a plurality of the textile machines.

[0004] Japanese Patent Application Laid-open No. 2013-67884 discloses a textile machine system in which control devices provided to a textile machine are arranged to be communicable with one another, and processing conditions of fiber processing units of a plurality of the textile machines can be simultaneously displayed. With the textile machine system, when copying a processing condition in one textile machine to other textile machines, the processing condition can be transmitted to chosen textile machines by choosing some or all of the textile machines and pressing a copy button.

[0005] Japanese Patent Application Laid-open No. 2004-345840 discloses a yarn processing condition setting system in which control devices provided to a textile machine are arranged to be communicable with one another, and when a processing condition is input in a control system of one textile machine, the processing condition is transmitted to the control devices of other textile machines, and the control devices of the other textile

machines that have received the processing condition perform change processing based on the processing condition.

5 SUMMARY OF THE INVENTION

[0006] However, in the textile machine system described in Japanese Patent Application Laid-open No. 2009-242029, some of the textile machines may be set to be an unintended processing condition if designation of a transmission destination is omitted when transmitting the processing condition from the control device of the one textile machine to the control devices of the plurality of the textile machines. In the textile machine system described in Japanese Patent Application Laid-open No. 2013-67884, omission of designation of the transmission destination can be prevented by choosing all the textile machines as the transmission destination of the processing condition, but operations for choosing all the textile machines as the transmission destination of the processing condition and actually transmitting the processing condition require time and effort. In the yarn processing condition setting system disclosed in Japanese Patent Application Laid-open No. 2004-345840, a conflict may occur among a plurality of the textile machines when the processing condition is simultaneously or substantially simultaneously changed in the control systems of a plurality of the textile machines. That is, some or all of the textile machines may be set to a processing condition not intended by the operator.

[0007] Objects of the present invention are thus to reduce trouble in operations of the operator when setting a processing condition in a plurality of the textile machines, and to provide a textile machine, a textile machine system and an updating method of setting values in the textile machine that can prevent the textile machine from being set to a processing condition not intended by the operator.

[0008] A textile machine of the present invention includes at least one fiber processing unit, and a management device adapted to control an operation of a device including the fiber processing unit. The management device includes an input section, a storage section, an inter-machine communicating section, and a machine control section. The input section is adapted to accept an input of various types of information. The storage section is adapted to store setting values, which are accepted via the input section, as various processing conditions. The inter-machine communicating section is adapted to enable communication with other textile machine. The machine control section is adapted to control the inter-machine communicating section to transmit the setting values to the other textile machine. The machine control section is further adapted to control the inter-machine communicating section to transmit input start information, which is information notifying that an input of the setting values is enabled, to the other textile machine when the input of the setting values is enabled.

[0009] An updating method of the present invention is updating setting values in a textile machine including at least one fiber processing unit and a management device. The management device includes an input section, a storage section, and an inter-machine communicating section. The input section is adapted to accept an input of various types of information. The storage section is adapted to store the setting values, which are accepted via the input section, as various processing conditions. The inter-machine communicating section is adapted to enable communication with other textile machine. The updating method of the present invention includes a first step and a second step. In the first step, the management device controls the inter-machine communicating section to transmit input start information, which is information notifying that an input of the setting values is enabled, to the other textile machine when the input of the setting values is enabled. In the second step, the management device controls the inter-machine communicating section to transmit the setting values to the other textile machine.

[0010] "Storing the setting values" includes a case of storing new setting values (new registration) and a case of storing input setting values by changing already stored setting values (update) .

[0011] In the textile machine having this configuration, setting values are updated based on the setting values accepted via the input section, and the setting values are transmitted to the other textile machine automatically (without designating a transmission destination). Furthermore, in the textile machine having this configuration, since the input of the setting values via the input section can be prohibited or login to the management device can be prevented in the other textile machine that has received the input start information, for example, a conflict can be prevented from occurring among a plurality of the textile machines. The "conflict" in the description means that some or all of the textile machines are set to setting values not intended by an operator since the setting values are simultaneously or substantially simultaneously transmitted from a plurality of the textile machines. Consequently, trouble in operations of the operator when setting a processing condition to a plurality of the textile machines can be reduced, and the textile machine can be prevented from being set to a processing condition not intended by the operator.

[0012] The machine control section may determine that the input of the setting values is enabled when an authentication section authenticates a specified user. The authentication section is adapted to authenticate the specified user based on authentication information input to the input section.

[0013] In the updating method of the present invention, the management device may determine that the input of the setting values is enabled when an authentication section authenticates a specified user. The authentication section is adapted to authenticate the specified user based on authentication information input to the input section.

[0014] In the textile machine having this configuration, when the authentication section authenticates the specified user, that is, when login to the management device is permitted, the input of the setting values in the other textile machine can be prohibited. Accordingly, the input of the setting values in the other textile machine can be prohibited at an early stage before the setting values are input.

[0015] The machine control section may prohibit the input of the setting values when the input start information is received.

[0016] The updating method of the present invention may further include a third step in which the management device prohibits the input of the setting values when the input start information is received via the inter-machine communicating section.

[0017] In the textile machine having this configuration, a conflict can be prevented from occurring among a plurality of the textile machines. Accordingly, the setting values can be input to an arbitrary one textile machine, and the input setting values can be synchronized in the other textile machine.

[0018] The textile machine of the present invention may further include a first notifying section adapted to notify the operator of information. The machine control section may control the first notifying section to notify input disable information, which is information notifying that the input of the setting values is prohibited, when the input of the setting values is prohibited.

[0019] In the textile machine having this configuration, in a case where the input of the setting values in the input section is prohibited, the first notifying section can be controlled to notify always or when login to the management device is attempted by the operator that the input of the setting values in the input section is prohibited. Accordingly, the operator can know that the input of the setting values in the input section is disabled.

[0020] The input disable information may include identification information of the textile machine being under a state in which the input of the setting values is enabled.

[0021] With the textile machine having this configuration, the operator can easily know to which textile machine the setting values can be input. The operator can move to the textile machine to which the setting values can be input, if necessary.

[0022] The machine control section may store the setting values in the storage section when the setting values are received via the inter-machine communicating section.

[0023] With the textile machine having this configuration, since the setting values transmitted from the other textile machine can be stored, synchronization with the setting values stored in the other textile machine can be achieved.

[0024] The machine control section may control the inter-machine communicating section to transmit input end information, which is information notifying that the state in which the input of the setting values is enabled

has ended, to the other textile machine when the state in which the input of the setting values is enabled ends.

[0025] With the textile machine having this configuration, the operator can know that a state in which the input of the setting values in the input section is prohibited is cancelled in the textile machine in which the input of the setting values via the input section is prohibited.

[0026] The machine control section may cancel the state in which the input of the setting values is prohibited when the input end information is received.

[0027] With the textile machine having this configuration, in the textile machine being under the state in which the input of the setting values is enabled, when such a state ends, the state in which the input of the setting values is prohibited can be immediately cancelled in the other textile machine.

[0028] The machine control section may control the inter-machine communicating section to periodically transmit continuation information after the input start information has been transmitted to the other textile machine until the state in which the input of the setting values is enabled ends. The continuation information is information notifying that the state in which the input of the setting values is enabled is continuing.

[0029] With the textile machine having this configuration, since the textile machine being under the state in which the input of the setting values is enabled periodically transmits the information notifying that the input of the setting values is enabled to the other textile machine, accuracy of the information notifying that the input of the setting values is enabled can be improved.

[0030] The machine control section may cancel the state in which the input of the setting values is prohibited when receipt of the periodically transmitted continuation information is interrupted.

[0031] For example, in the textile machine configured to transmit the input end information when the state in which the input of the setting values is enabled is cancelled, when power is unintentionally turned off, the input end information cannot be transmitted. In this case, the state in which the input of the setting values is prohibited cannot be cancelled in the other textile machine indefinitely. With the textile machine having this configuration, the other textile machine can immediately cancel the state in which the input of the setting values is prohibited by making use of a phenomenon in which the continuation information is not periodically transmitted.

[0032] The machine control section may determine whether or not to transmit the input setting values or the setting values received via the inter-machine communicating section to the fiber processing unit.

[0033] With the textile machine having this configuration, setting information stored in the fiber processing unit can be updated at an appropriate timing.

[0034] The machine control section may accept from the input section, whether or not to transmit as confirmation information and change the information to be transmitted based on whether or not to transmit as the confir-

mation information when transmitting the setting values to the other textile machine. The confirmation information is information indicating that confirmation as to whether or not to reflect the setting values in the other textile machine is required.

[0035] With the textile machine having this configuration, there is provided an opportunity in which the operator can confirm and determine whether or not to reflect the setting values transmitted from one textile machine in the other textile machine.

[0036] The machine control section may change processing of the setting values based on whether or not the setting values received via the inter-machine communicating section have been transmitted as the confirmation information.

[0037] With the textile machine having this configuration, based on whether or not the setting values have been transmitted as the confirmation information, appropriate processing, for example, such as immediately reflecting the setting values in the textile machine or inquiring of the operator whether or not to reflect the setting values in the textile machine becomes possible in accordance with a case.

[0038] The machine control section may hold storing of the setting values in the storage section until an input whether or not to hold reflection is made in the input section when the setting values received via the inter-machine communicating section is transmitted as the confirmation information, and may store the setting values in the storage section when the setting values are not transmitted as the confirmation information.

[0039] With the textile machine having this configuration, appropriate processing is enabled based on information transmitted from the other textile machine.

[0040] The machine control section may hold storing of the setting values in the storage section until an input as to whether or not to reflect is made in the input section when the setting values are received via the inter-machine communicating section, and may store the setting values in the storage section when an input to reflect is made in the input section.

[0041] With the textile machine having this configuration, storing of the setting values in the storage section is reliably held until an input as to whether or not to reflect is made. Accordingly, the setting values are changed upon confirmation of status of the machine by the operator.

[0042] The textile machine of the present invention may further include a second notifying section adapted to notify the operator of information. The machine control section may control the second notifying section to notify hold information, which is information not to reflect, when an input not to reflect is made in the input section.

[0043] With the textile machine having this configuration, the operator can know that reflecting of the received setting values is held without being reflected in the textile machine. Accordingly, the operator can provide an instruction to reflect while viewing status of the textile machine.

[0044] With the present invention, trouble in operations of the operator when setting various processing conditions in a plurality of the textile machines can be reduced, and the textile machine can be prevented from being set to a processing condition not intended by the operator.

BRIEF DESCRIPTION OF THE DRAWINGS

[0045]

FIG. 1 is a block diagram illustrating an automatic winder according to one embodiment;
 FIG. 2 is a configuration diagram illustrating an automatic winder system according to the embodiment;
 FIG. 3 is a diagram illustrating one example of setting values stored in a storage section;
 FIG. 4 is a sequence diagram illustrating a relation of one automatic winder and other automatic winder after login;
 FIG. 5 is a sequence diagram illustrating a relation of one automatic winder and other automatic winder after login;
 FIG. 6 is a flowchart illustrating processing after accepting setting values;
 FIG. 7 is a flowchart illustrating processing after receiving setting values;
 FIGS. 8A and 8B are each an explanatory diagram illustrating an allocation lot and a memory lot;
 FIG. 9 is a flowchart illustrating processing after accepting setting values in the automatic winder according to alternative embodiment 1;
 FIG. 10 is a flowchart illustrating processing after receiving setting values in the automatic winder according to alternative embodiment 1;
 FIG. 11A and 11B are each an explanatory diagram illustrating a synchronization method of setting values in alternative embodiment 3; and
 FIGS. 12A and 12B are each an explanatory diagram illustrating the synchronization method of the setting values in alternative embodiment 3.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0046] An automatic winder system (a textile machine system) 90 provided with an automatic winder (a textile machine) 1 according to one embodiment will be hereinafter described with reference to the accompanying drawings. The same reference numerals are denoted on the same elements throughout the description on the drawings, and redundant description will be omitted. The dimensional ratios in the drawings do not necessarily match with the actual devices.

[0047] As illustrated in FIG. 2, six units (a plurality) of the automatic winders 1 (see FIG. 1) are communicably connected to one another in the automatic winder system 90. The connection among the six units of the automatic winders 1 may be wired or wireless. As illustrated in FIG.

1, the automatic winder 1 includes a plurality of winding units (fiber processing units) 10, a doffing device (a fiber processing unit) 30, a yarn supplying bobbin supplying device (a fiber processing unit) 40, and a management device 50.

[0048] The plurality of the winding units 10 are arranged side by side along a longitudinal direction of a machine. Each of the winding units 10 is adapted to form a package P by winding a yarn Y unwound from a yarn supplying bobbin 11 around a bobbin while traversing the yarn Y with a traverse drum 13. The winding unit 10 includes a yarn monitoring device 15 and a yarn joining device 17. The yarn monitoring device 15 is adapted to monitor a thickness of the travelling yarn Y, and the like. The yarn joining device 17 is adapted to join disconnected yarns. In the winding unit 10, winding of the yarn Y is interrupted and the yarn Y is disconnected when a yarn defect of the yarn Y is detected by the yarn monitoring device 15. After a yarn defect portion is removed, yarn ends are joined by the yarn joining device 17. The winding unit 10 restarts winding of the yarn Y of which yarn ends have been joined.

[0049] The winding unit 10 includes a unit controller 19. The unit controller 19 is adapted to execute various types of control processing in the winding unit 10. The unit controller 19 is arranged to be communicable with a setting management section (a machine control section) 53A via an intra-machine communicating section 53B included in the management device 50. The unit controller 19 is formed of a Central Processing Unit (CPU) and a storage section. The storage section is a Read Only Memory (ROM), a Random Access Memory (RAM), a hard disc, and the like. The unit controller 19 may be formed as hardware such as an electronic circuit.

[0050] The unit controller 19 stores lot setting value information T2 (see FIG. 3) in the storage section. The lot setting value information T2 is information in which setting values relating to yarn processing conditions are set for a plurality of items. The unit controller 19 operates the winding unit 10 based on the setting values of each item that are stored as the lot setting value information T2. The lot setting value information T2 stored by the unit controller 19 is updated by a machine controller 53, which will be described later.

[0051] The doffing device 30 is arranged to be movable along a direction in which the winding units 10 are arranged. When the package P becomes fully-wound in each winding unit 10, the doffing device 30 travels to a position of such a winding unit 2 to collect the fully-wound package P and to supply an empty bobbin. The doffing device 30 includes a doffing controller 31. The doffing controller 31 is arranged to be communicable with the setting management section 53A via the intra-machine communicating section 53B included in the management device 50. Similarly to the unit controller 19, the doffing controller 31 is formed of a CPU and a storage section. The storage section is an ROM, an RAM, a hard disc, and the like.

[0052] The doffing controller 31 stores doffing vehicle setting value information in the storage section. The doffing vehicle setting value information is information in which setting values relating to doffing processing conditions are set for a plurality of items. The doffing controller 31 operates the doffing device 30 based on the setting values of each item that are stored as the doffing vehicle setting value information. The doffing vehicle setting value information stored by the doffing controller 31 is updated by the machine controller 53, which will be described later.

[0053] A yarn supplying bobbin supplying device 40 is adapted to transport the yarn supplying bobbin 11 along a supply path (not illustrated) and to supply the yarn supplying bobbin 11 to each winding unit 10. The yarn supplying bobbin supplying device 40 includes a supply controller 41. The supply controller 41 is arranged to be communicable with the setting management section 53A via the intra-machine communicating section 53B included in the management device 50. Similarly to the unit controller 19, the supply controller 41 is formed of a CPU and a storage section. The storage section is an ROM, an RAM, a hard disc, and the like.

[0054] The supply controller 41 stores supplying device setting value information in the storage section. The supplying device setting value information is information in which setting values related to supply processing conditions are set for a plurality of items. The supply controller 41 operates the yarn supplying bobbin supplying device 40 based on the setting values of each item that are stored as the supplying device setting value information. The supplying device setting value information stored by the supply controller 41 is updated by the machine controller 53, which will be described later.

[0055] The management device 50 is adapted to control operations of devices (various devices provided in the automatic winder 1) including the winding unit 10. The management device 50 includes a touch panel display (an input section, a first notifying section, a second notifying section) 51, a storage section 57, the machine controller 53, and a main body controller 55.

[0056] The touch panel display 51 is capable of providing various types of information to an operator and accepting various types of information from the operator. The touch panel display 51 is used as an input section and a notifying section in the present embodiment, but a monitor as the notifying section and a key (an input button) as the input section may be provided instead of the touch panel display 51. When setting values are prohibited from being input in the touch panel display 51 by a control of the setting management section 53A, which will be described later in detail, input disable information being information notifying that the input of the setting values is prohibited is displayed (notified) on the touch panel display 51.

[0057] The storage section 57 is adapted to store as various setting value information T1, various setting values for operating and managing the automatic winder 1.

As illustrated in FIG. 3, the various setting value information T1 includes, for example, the lot setting value information T2, main body setting value information, the doffing vehicle setting value information, setting management section setting value information, and the like. The main body setting value information includes, for example, a setting value for setting a blower speed. The doffing vehicle setting value information includes, for example, a setting value for setting a travelling speed of the doffing vehicle. The setting management section setting value information includes setting values for determining contents to be displayed on the touch panel display 51 and contents to be output as a report.

[0058] The lot setting value information T2 includes a plurality of setting values set to determine operational contents of each winding unit 10. As illustrated in FIG. 3, the lot setting value information T2 consists of a plurality of items. The items are, for example, a yarn count, a yarn type, a yarn speed, a package weight, and the like. A group consisting of the plurality of the items is referred to as a "lot". The storage section 57 stores a plurality of the "lots" in which each of the items is set to be an appropriate value in accordance with specifications and/or an operational environment of a product.

[0059] The storage section 57 illustrated in FIG. 1 also stores information necessary for authentication processing in an inter-machine communicating section (an authentication section) 53C, which will be described later. For example, the storage section 57 stores authentication information in which a user name, a password, and contents of authority are associated with one another.

[0060] The main body controller 55 is adapted to mainly control devices that are provided in common to each winding unit 10 among devices provided to the automatic winder 1. The devices controlled by the main body controller 55 are a blower, a conveyer device, and the like. The conveyor device is adapted to transport the package P that has been doffed by the doffing device 30 to a machine end portion. The main body controller 55 is arranged to be communicable with the setting management section 53A via the intra-machine communicating section 53B. Similarly to the unit controller 19, the main body controller 55 is formed of a CPU and a storage section. The storage section is an ROM, an RAM, a hard disc, and the like.

[0061] The main body controller 55 stores the main body setting value information in the storage section. The main body setting value information is information in which setting values relating to blower processing conditions are set for a plurality of items. The main body controller 55 operates the blower and the like based on the setting values of each item that are stored as the main body setting value information. The main body setting value information stored by the main body controller 55 is updated by the machine controller 53, which will be described later.

[0062] The machine controller 53 is adapted to set an operational condition of the automatic winder 1 and to

monitor production status of the automatic winder 1. The monitoring of the production status includes monitoring of machine efficiency and/or management of yarn quality. The machine controller 53 includes the setting management section 53A, the intra-machine communicating section 53B, and the inter-machine communicating section 53C.

[0063] When an input of setting values via the touch panel display 51 is enabled, the setting management section 53A controls the inter-machine communicating section 53C to transmit input start information, which is information notifying that the input of the setting values is enabled, to other automatic winders 1. The setting management section 53A updates the setting value information T1 (see FIG. 3) stored in the storage section 57 based on the setting values accepted via the touch panel display 51. Furthermore, the setting management section 53A controls the inter-machine communicating section 53C to transmit the setting values to the other automatic winders 1.

[0064] "When an/the input of (the) setting values is enabled" in the description means a time when the inter-machine communicating section 53C authenticates a specified user based on authentication information input to the touch panel display 51, in other words, means a time when being authenticated by the inter-machine communicating section 53C and entering into a state of logging in to the management device 50. The authentication processing by the inter-machine communicating section 53C will be described later in detail.

[0065] When the input start information is received from other automatic winder 1 via the inter-machine communicating section 53C, the setting management section 53A prohibits an input of setting values in the touch panel display 51. After prohibiting the input of the setting values in the touch panel display 51, the setting management section 53A displays on the touch panel display 51, a message (the input disable information) notifying that the input of the setting values is disabled. The message may include identification information of the other automatic winder 1 being under a state in which the input of the setting values is enabled. In other words, the message may include the identification information of the automatic winder 1 in which the setting values are being input (edited) at this point. Accordingly, the operator can easily know in which automatic winder 1 the setting values are being input.

[0066] When the state in which the input of the setting values is enabled ends, the setting management section 53A controls the inter-machine communicating section 53C to transmit input end information, which is information notifying that the state in which the input of the setting values is enabled has ended, to the other automatic winders 1. In other words, after logout of the management device 50 is performed, the setting management section 53A controls the inter-machine communicating section 53C to transmit the input end information to the other automatic winders 1. When the input end information is

received via the inter-machine communicating section 53C, the setting management section 53A cancels a state in which the input of the setting values is prohibited.

[0067] In the automatic winder 1 of the present embodiment, the setting management section 53A controls the inter-machine communicating section 53C to periodically transmit continuation information after the input start information has been transmitted to the other automatic winders 1 until the state in which the input of the setting values is enabled ends (under a state of logging into the management device 50). The continuation information is information notifying that the state in which the input of the setting values is enabled is continuing. Description in terms of this point will be made specifically with reference to FIGS. 4 and 5.

[0068] As illustrated in FIG. 4, the setting management section 53A transmits a user name and a password to the inter-machine communicating section 53C and makes a login request to the inter-machine communicating section 53C. The user name and the password are input via the touch panel display 51. The inter-machine communicating section 53C checks whether or not a combination of the user name and the password is stored as the authentication information in the storage section 57. After confirming that such a combination is stored as the authentication information, the inter-machine communicating section 53C brings the management device 50 into a state in which operations are permitted therein (a so-called login state). The inter-machine communicating section 53C may limit contents of the operation to be permitted in accordance with the contents of authority related to the user name. Simultaneously with this timing, the setting management section 53A controls the inter-machine communicating section 53C to transmit information (the input start information) notifying that the setting values have started to be edited to other automatic winders 1.

[0069] After login to the management device 50 has been permitted until a logout request is made, the setting management section 53A controls the inter-machine communicating section 53C to transmit the information (the continuation information) notifying that the setting values are being edited to the other automatic winders 1 at a predetermined time interval (periodically). When the logout request is input via the touch panel display 51, the setting management section 53A transmits information notifying that the logout request is input to the inter-machine communicating section 53C and makes a logout request to the inter-machine communicating section 53C. After accepting the logout request, the inter-machine communicating section 53C brings the management device 50 into a state in which operations are prohibited therein (a so-called logout state). Simultaneously with this timing, the setting management section 53A controls the inter-machine communicating section 53C to transmit information (the input end information) notifying that editing of the setting values has ended to the other automatic winders 1. After receiving the input end

information, the setting management sections 53A in the other automatic winders 1 cancel the state in which the input of the setting values is prohibited. In other words, when logout is performed in one automatic winder 1, other automatic winders 1 enter into the state in which the input of the setting values is enabled.

[0070] Next, processing when login is attempted in other automatic winder 1 under a state in which login has been permitted in one automatic winder 1 will be described. As illustrated in FIG. 5, the continuation information is periodically transmitted to other automatic winders 1. While the inter-machine communicating sections 53C periodically receives the continuation information, the inter-machine communicating sections 53C do not accept a login request even if such a request is made by the setting management sections 53A. That is, login cannot be executed in the other automatic winders 1. Accordingly, a state in which the input of the setting values is disabled is maintained in the other automatic winders 1.

[0071] When receipt of the continuation information periodically transmitted via the inter-machine communicating sections 53C is interrupted, the setting management sections 53A may cancel the state in which the input of the setting values is prohibited. That is, the other automatic winders 1 may be brought into a state in which a login request can be accepted. With such a configuration, even if power is unintentionally turned off in one automatic winder 1, the setting management sections 53A of other automatic winders 1 can cancel the state in which the input of the setting values is prohibited by making use of a phenomenon in which the continuation information is not periodically transmitted.

[0072] Referring back to FIG. 1, the rest of the configuration of the automatic winder 1 will be described. The intra-machine communicating section 53B enables communication 1, communication 2, and communication 3. Communication 1 is communication between the setting management section 53A and the unit controller 19 provided to each winding unit 10. Communication 2 is communication between the setting management section 53A and the doffing controller 31 provided to the doffing device 30. Communication 3 is communication between the setting management section 53A and the supply controller 41 provided to the yarn supplying bobbin supplying device 40. Furthermore, the intra-machine communicating section 53B integrates management information transmitted from each fiber processing unit (the winding unit 10, the doffing device 30, the yarn supplying bobbin supplying device 40), determines a destination of setting values input to the touch panel display 51, and the like.

[0073] The inter-machine communicating section 53C enables communication between the machine controller 53 and the machine controllers 53 provided in the other automatic winders 1. Furthermore, as described above, the inter-machine communicating section 53C has a function as the authentication section. That is, the inter-machine communicating section 53C authorizes the op-

erator to execute operations in the management device 50. Such authorization in the inter-machine communicating section 53C may be intended for all the operations in the management device 50, or a specified operation such as an operation to input or change setting values. In the automatic winder 1 of the present embodiment, the operator is required to login to operate the management device 50.

[0074] In the automatic winder 1 of the present embodiment, description is made with an example in which the inter-machine communicating section 53C has the function as the authentication section, but the present invention is not limited to this configuration. For example, the authentication section may be configured as a host controller adapted to manage operational status of a plurality of the automatic winders 1 or configured as an external server.

[0075] Next, steps in which when setting values are updated in one automatic winder 1, setting values of a plurality of the automatic winders 1 are also automatically updated will be described mainly with reference to FIGS. 6 and 7. "Automatically" in the description means that the operator is not required to perform a special operation such as designation of a copy destination, or the like. One automatic winder 1 (an transmission side automatic winder 1) to which setting values are input will be described first.

[0076] As illustrated in FIG. 6, the setting management section 53A accepts setting values via the touch panel display 51 (step S11). The setting management section 53A then updates the setting value information T1 stored in the storage section 57 based on the setting values input via the touch panel display 51 (step S12). The setting management section 53A then determines whether or not the input setting values are setting values to be transmitted within a machine (step S13). "Transmitting within a machine" means transmitting the setting values to the controller (the unit controller 19, the doffing controller 31, the supply controller 41) provided to each fiber processing unit (the winding unit 10, the doffing device 30, the yarn supplying bobbin supplying device 40).

[0077] The automatic winder 1 and the automatic winder system 90 of the present embodiment have a feature in which determination whether or not input setting values are setting values to be transmitted within a machine is executed. The "setting values to be transmitted within a/the machine" include the lot setting value information T2 that corresponds to an allocation lot, the main body setting value information, and the doffing vehicle setting value information. "Setting values not to be transmitted within a/the machine" include the lot setting value information T2 that corresponds to a memory lot, and the setting management section setting value information. The allocation lot and the memory lot will be described below.

[0078] The lot setting value information T2 consists of combinations of setting values for a plurality of items, and a name is given to every combination (lot 1, lot 2, ..., lot

N). The lot setting value information T2 includes the lot setting value information T2 that corresponds to the allocation lot, and the lot setting value information T2 that corresponds to the memory lot. The allocation lot means a lot being used in the winding unit 10. That is, the lot setting value information T2 that corresponds to the allocation lot is stored in the storage section of the unit controller 19 of each winding unit 10. In the winding unit 10, operations are executed in accordance with the lot setting value information T2 that corresponds to the allocation lot. The memory lot is a lot not currently being used in the winding unit 10 and stored in the storage section 57 of the management device 50. The lot setting value information T2 that corresponds to the memory lot is transmitted to the unit controller 19 by the setting management section 53A at a timing of being used.

[0079] For example, as illustrated in FIG. 8A, when the lot 3 of the lot setting value information T2 is used in all of the winding units 10, the lot 3 becomes the allocation lot, and lots other than the lot 3 become the memory lot. As illustrated in FIG. 8B, when the lot 1, the lot 2, and the lot 3 are used in the winding units 10, the lots 1 to 3 become the allocation lot, and lots other than the lots 1 to 3 become the memory lot. Description will be hereinafter made on an assumption that setting values for updating the lot setting value information T2 have been input.

[0080] In a case of having determined that input information is setting values that update an allocation lot (step S13: YES), the setting management section 53A controls the intra-machine communicating section 53B to transmit such setting values to the unit controller 19 (step S14). Accordingly, setting value information stored in the storage section of the unit controller 19 is updated (step S15). The setting management section 53A then controls the inter-machine communicating section 53C to transmit the input setting values to other automatic winders 1 (step S16).

[0081] In a case of having determined that the input information is setting values that update a memory lot (step S13: NO), the setting management section 53A controls the inter-machine communicating section 53C to transmit the input setting values to the other automatic winders 1 without transmitting such setting values to the unit controller 19 (step S16).

[0082] Next, other automatic winder 1 (a receiving side automatic winder 1) that receives setting values transmitted from one automatic winder 1 will be described. As illustrated in FIG. 7, the setting management section 53A first receives setting values via the inter-machine communicating section 53C (step S21). The setting management section 53A then updates setting value information stored in the storage section 57 based on the received setting values (step S22). The setting management section 53A then determines whether or not the received setting values are setting values to be transmitted within the machine (step S23).

[0083] In a case of having determined that the received

information is setting values that update an allocation lot (step S23: YES), the setting management section 53A controls the intra-machine communicating section 53B to transmit such setting values to the unit controller 19 (step S24). Accordingly, setting value information stored in the storage section of the unit controller 19 is updated (step S25). Consequently, a series of update processing ends.

[0084] In a case of having determined that the received information is setting values that update a memory lot (step S23: NO), the setting management section 53A ends the series of processing without transmitting such setting values to the unit controller 19.

[0085] Effects of the automatic winder 1 and the automatic winder system 90 provided with the automatic winder 1 of the above-described embodiment will be described.

[0086] In the automatic winder 1 and the automatic winder system 90 with this configuration, the setting value information T1 (see FIG. 3) is updated based on setting values accepted via the touch panel display 51, and the setting values are automatically transmitted to other automatic winders 1. Furthermore, in the automatic winder 1 and the automatic winder system 90 with this configuration, since the other automatic winders 1 that have received the input start information prohibit an input of setting values via the touch panel display 51, conflict in updating setting values can be prevented from occurring among a plurality of the automatic winders 1. Consequently, trouble in operation of the operator when setting various setting values (processing conditions) in a plurality of the automatic winders 1 can be reduced, and some or all of the automatic winders 1 can be prevented from being set to setting values (processing conditions) not intended by the operator.

[0087] In the automatic winder 1 and the automatic winder system 90 with this configuration, when the inter-machine communicating section 53C authenticates a specified user, that is, when login to the management device 50 is permitted, an input of setting values to other automatic winders 1 is prohibited. Accordingly, the input of the setting values to the other automatic winders 1 can be prohibited at an early stage before setting values are input.

[0088] In the automatic winder 1 and the automatic winder system 90 with this configuration, since input setting values or received setting values are determined whether or not to be transmitted within the machine, the setting value information stored in the unit controller 19 can be updated at an appropriate timing.

[0089] In the automatic winder system 90 as described above, there may be a case in which a factory management system adapted to manage a plurality of the machine controllers 53 is provided. However, in many cases, such a factory management system is arranged at a place different from a place of a factory where the automatic winder 1 is arranged. In many cases, specifications that do not allow an input in the above-described factory man-

agement system are intentionally made to prevent the input of the setting values (the update operation of the setting value information) from being executed under a state in which status of the automatic winder 1 arranged in the factory is not known. In the automatic winder 1 and the automatic winder system 90 of the above-described embodiment, great effects are obtained in particular in a case where such specifications are demanded.

[0090] An embodiment of the present invention has been described above, but the present invention is not limited to the above-described embodiment, and various modifications can be made without departing from the scope of the invention.

[0091] <Alternative embodiment 1> In the above-described embodiment, setting values transmitted from other automatic winder 1 are immediately stored in the storage section 57. Alternative embodiment 1 differs from the above-described embodiment in a feature in which the setting values are not stored without a confirmation operation by an operator. This different feature will be hereinafter described specifically with reference to FIGS. 9 and 10.

[0092] First, one automatic winder 1 (a transmission side automatic winder 1) to which setting value information is input will be described. Since processes of steps S31 to S34 illustrated in FIG. 9 are the same as processes of steps S11 to S14 of the above-described embodiment, description will be omitted.

[0093] When transmitting input setting values to other automatic winders 1, the setting management section 53A accepts from the touch panel display 51 whether or not to send the setting values as confirmation information, and changes the information to be transmitted based on whether or not to send as the confirmation information (step S35). The confirmation information is information indicating that confirmation as to whether or not to reflect the setting values in a transmission destination automatic winder 1 is required. For example, when reflecting the setting values while viewing status of the automatic winder 1 is desirable, the operator may perform an input to transmit as the confirmation information.

[0094] In a case of having determined to transmit as the confirmation information (step S35: YES), the setting management section 53A attaches control information to the setting values and transmits to the setting management sections 53A provided to the other automatic winders 1 (step S36) instead of merely transmitting the setting values to the other automatic winders 1. The attached control information is information for displaying an interface, which causes the operator to choose whether or not to reflect the setting values in a setting of the winding unit 10, on the touch panel display 51.

[0095] On the other hand, in a case of having determined not to transmit as the confirmation information (step S35: NO), the setting management section 53A transmits only the setting values to the other automatic winders 1. Since a process of step S37 illustrated in FIG. 9 is the same as a process of step S16 of the above-

described embodiment, description will be omitted. A method of distinguishing between the confirmation information and non-confirmation information is not limited to whether or not the control information has been attached, and a receiving destination setting management section 53A is merely required to be capable of distinguishing whether the setting values have been transmitted as the confirmation information or the non-confirmation information.

[0096] Next, processing of other automatic winder 1 (a receiving side automatic winder 1) that receives setting values transmitted from one automatic winder 1 will be described with reference to FIG. 10. Since processes of steps S41 to S43 illustrated in FIG. 10 are the same as processes of steps S21 to S23 of the above-described embodiment, description will be omitted.

[0097] In a case where the received setting values have been determined to be setting values not to be transmitted within the machine (step S43: NO), a series of processing ends. In a case where the received setting values have been determined to be setting values to be transmitted within the machine (step S43: YES), the setting management section 53A determines whether or not the control information has been attached to the setting values (step S44).

[0098] At this point, in a case where the control information has been attached (step S44: YES), the setting management section 53A displays on the touch panel display 51, the interface inquiring whether or not to reflect the setting values (step S45). At this time, a message notifying that based on the setting values received from which automatic winder 1, confirmation of change is being made may be displayed. At this point, in a case where the operator inputs via the interface, information to reflect, the setting management section 53A controls the intra-machine communicating section 53B to transmit the setting values to the unit controller 19. Accordingly, setting value information stored in the storage section of the unit controller 19 is updated. In a case where the operator inputs via the interface, information to hold reflection, a series of processing ends under a state in which a message notifying that reflecting is being held is displayed on the touch panel display 51.

[0099] On the other hand, in a case where the control information has not been attached (step S44: NO), the setting management section 53A controls the intra-machine communicating section 53B to transmit the setting values to the unit controller 19. Accordingly, the setting value information stored in the storage section of the unit controller 19 is updated (step S46), and a series of update processing ends.

[0100] With the automatic winder 1 and the automatic winder system 90 according to alternative embodiment 1, there can be provided an opportunity in which whether or not to reflect setting values input in one automatic winder 1 in a setting of the fiber processing unit can be confirmed and determined.

[0101] In alternative embodiment 1, description has

been made with an example in which the operator is caused to choose whether or not to reflect the transmitted setting values in a setting of the winding unit 10, but the present invention is not limited thereto. For example, a configuration in which the operator is caused to choose whether or not to reflect the transmitted setting values in the storage section may be made.

[0102] In alternative embodiment 1, description has been made with an example in which when transmitting input setting values to other automatic winders 1, whether or not to transmit the setting values as the confirmation information is accepted via the touch panel display 51, and the information to be transmitted is changed based on whether or not to be transmitted as the confirmation information (step S35), but the present invention is not limited thereto. For example, all the setting values to be transmitted may be transmitted as the confirmation information.

[0103] In alternative embodiment 1, when displaying a reflection hold message in step S44, the setting management section 53A controls the intra-machine communicating section 53B to refrain from transmitting the setting values to the unit controller 19, but transmission to the unit controller 19 may be permitted, and control may be made by the unit controller 19 to hold reflection of the setting values.

<Alternative embodiment 2>

[0104] In the above-described embodiment, description has been made, as illustrated in FIG. 7, with an example in which after receiving setting values via the inter-machine communicating section 53C (step S21), the setting management section 53A updates the setting value information stored in the storage section 57 based on the received setting values (step S22), but a modification may be made as follows. That is, in a case where setting values have been transmitted from other automatic winder 1, the setting management section 53A may always display on the touch panel display 51, the interface inquiring whether or not to reflect the setting values, and the setting management section 53A may store the setting values in the storage section 57 only when an input to reflect is made on the touch panel display 51.

[0105] Furthermore, in alternative embodiment 1, description has been made with an example in which only in the case where the control information has been attached (step S44: YES), the setting management section 53A displays on the touch panel display 51, the interface inquiring whether or not to reflect the setting values (step S45), but a modification may be made as follows. That is, in a case of having received setting values via the inter-machine communicating section 53C, the setting management section 53A may display on the touch panel display 51, the interface inquiring whether or not to reflect the setting values regardless of whether or not the control information has been attached, and the setting management section 53A may store the setting values in the stor-

age section 57 only when an input to reflect is made on the touch panel display 51.

[0106] With the automatic winder 1 and the automatic winder system 90 having the configuration according to alternative embodiment 2, in the case of having received the setting values from other automatic winder 1, storing of the setting values in the storage section 57 is reliably held until the input to reflect the setting values is made on the touch panel display 51. Accordingly, the setting values are changed upon confirmation of status of the automatic winder 1 by the operator.

<Alternative embodiment 3>

[0107] Alternative embodiment 3 differs from the above-described embodiment in a feature in which when transmitting setting values to other textile machine, information relating to a time when the setting time was input is attached.

[0108] The setting management section (the machine control section) 53A controls the inter-machine communicating section 53C to transmit input setting values and information relating to the time when the setting values were input to other automatic winders (the textile machines) 1. The setting management section 53A confirms last synchronization time stored in the storage sections 57 of the other automatic winders (No. 1, 2, 4~6) when power is activated (including a time of power restoration). If there is other automatic winder 1 that stores last synchronization time newer than the last synchronization time stored in the storage section 57 of the automatic winder (No. 3), the setting management section 53A obtains setting values of such an automatic winder 1 and updates setting values stored in the storage section 57. This different feature will be hereinafter described mainly with reference to FIGS. 11 and 12.

[0109] As illustrated in FIG. 11A, when setting values are input in one automatic winder 1 (No. 1), the automatic winder 1 transmits to other automatic winders (No. 2~6), the time when the setting values were input together with the setting values. After receiving the setting values and the time, the other automatic winders (No. 2~6) update setting values stored in the storage sections 57 based on the setting values and store the time in the storage sections 57 as the last synchronization time. Accordingly, synchronization of the setting values is achieved in the plurality of the automatic winders (No. 1~6).

[0110] However, as illustrated in FIG. 11B, when one automatic winder 1 (No. 1) transmits the setting values and the time to the other automatic winders (No. 2~6), if there is an automatic winder 1 (No. 3 in this case) in which power is not activated, synchronization of the setting values cannot be achieved in the plurality of the automatic winders 1 (No. 1~6).

[0111] The automatic winder 1 according to alternative embodiment 3 confirms the last synchronization time stored in the other automatic winders 1 when power is activated (at the time of time restoration). As illustrated

in FIG. 12A, for example, the automatic winder 1 (No. 3) confirms the last synchronization time stored in the other automatic winders (No. 1, 2, 4~6) when power is activated (at the time of power restoration). Then, if there are the automatic winders 1 that store the last synchronization time newer than the last synchronization time stored in the storage section 57 of the automatic winder (No. 3), the automatic winder 1 (No. 3) obtains setting values from such automatic winders 1 and updates setting values stored in the storage section 57. Accordingly, as illustrated in FIG. 12B, synchronization of the setting values is achieved.

[0112] In one automatic winder 1, there may be a case in which setting values in the storage section 57 are not updated (are held) despite the fact that the automatic winder 1 has received setting values. Even in this case, the time transmitted with the setting values is stored as the last synchronization time. If the automatic winder 1 being under a state in which the received setting values are being held without being reflected can be distinguished from other automatic winders 1, a configuration in which obtaining setting values of the automatic winder 1 under such a state is avoided may be made.

<Other alternative embodiment>

[0113] In the above-described embodiment and alternative embodiments, description has been made with an example of the automatic winder 1 as a textile machine, but the present invention is not limited thereto. The present invention may be applied to a textile machine, for example, such as a rover, a fine spinning machine, a weaving machine, a knitting machine, a spun-yarn winding machine, a drawing and false-twisting machine, a pneumatic spinning machine, or the like.

[0114] In the above-described embodiment and alternative embodiments, description has been made with an example in which one unit controller 19 is arranged for one winding unit 10, but the present invention is not limited thereto. For example, one unit controller 19 may be arranged for a plurality of the winding units 10.

[0115] In the above-described embodiment and alternative embodiments, a predetermined rule in which when a plurality of the automatic winders 1 simultaneously login, only a login of an automatic winder 1 having a smallest identification number, for example, is validated may be defined. Accordingly, a state in which an input of setting values is simultaneously enabled in a plurality of the automatic winders 1 that constitute the automatic winder system 90 can be avoided.

[0116] In the above-described embodiment and alternative embodiments, description has been made with an example in which setting values stored in the storage section of the unit controller 19 are updated when setting values are transmitted from the setting management section 53A to each unit controller 19, but the present invention is not limited thereto. For example, the unit controller 19 may hold update of the setting values stored in the

storage section of the unit controller 19. That is, the unit controller 19 may adjust a timing to update the setting value.

[0117] In the above-described embodiment and alternative embodiments, a timing to transmit setting values from the management device 50 to the unit controller 19 is not mentioned, but for example, the setting values may be transmitted at a timing in which the fiber processing unit (the winding unit 10, the doffing device 30, the yarn supplying bobbin supplying device 40) is not being operated. In this case, for example, there may be provided a monitoring section adapted to always or periodically monitor an operational state of the fiber processing unit (the winding unit 10, the doffing device 30, the yarn supplying bobbin supplying device 40). The setting management section 53A may control the intra-machine communicating section 53B to transmit the setting values at a timing in which the fiber processing unit is not being operated, based on information relating to the operational state transmitted from the monitoring section. Accordingly, the setting values can be controlled at an appropriate timing in accordance with the operational state of the fiber processing unit. Alternatively, the setting management section 53A may cause the monitoring section to obtain the operational state of the fiber processing unit at a timing to transmit the setting values.

[0118] In the above-described embodiment and alternative embodiments, description has been made with transmission of setting values from the management device 50 to the unit controller 19 as a main example, but the same applies to transmission of the setting values from the management device 50 to the doffing controller 31, and from the management device 50 to the supply controller 41.

Claims

1. A textile machine (1) comprising:

at least one fiber processing unit (10, 30, 40); and
a management device (50) adapted to control an operation of a device including the fiber processing unit (10, 30, 40), wherein the management device (50) includes:

an input section (51) adapted to accept an input of various types of information;
a storage section (57) adapted to store setting values as various processing conditions, the setting values being accepted via the input section (51);
an inter-machine communicating section (53C) adapted to enable communication with other textile machine (1); and
a machine control section (53A) adapted to control the inter-machine communicating

- section (53C) to transmit the setting values to the other textile machine (1) and to control the inter-machine communicating section (53C) to transmit input start information to the other textile machine (1) when an input of the setting values is enabled, the input start information being information notifying that the input of the setting values is enabled.
2. The textile machine (1) according to claim 1, wherein the machine control section (53A) is adapted to determine that the input of the setting values is enabled when an authentication section (53C) authenticates a specified user, the authentication section (53C) being adapted to authenticate the specified user based on authentication information input to the input section (51).
 3. The textile machine (1) according to claim 1 or claim 2, wherein the machine control section (53A) is adapted to prohibit the input of the setting values when the input start information is received.
 4. The textile machine (1) according to claim 3, further comprising a first notifying section (53) adapted to notify an operator of information, wherein the machine control section (53A) is adapted to control the first notifying section (53) to notify input disable information when the input of the setting values is prohibited, the input disable information being information notifying that the input of the setting values is prohibited.
 5. The textile machine (1) according to claim 4, wherein the input disable information includes identification information of the textile machine (1) being under a state in which the input of the setting values is enabled.
 6. The textile machine (1) according to any one of claim 1 through claim 5, wherein the machine control section (53A) is adapted to store the setting values in the storage section (57) when the setting values are received via the inter-machine communicating section (53C).
 7. The textile machine (1) according to any one of claim 1 through claim 6, wherein the machine control section (53A) is adapted to control the inter-machine communicating section (53C) to transmit input end information to the other textile machine (1) when the state in which the input of the setting values is enabled ends, the input end information being information notifying that the state in which the input of the setting values is enabled has ended.
 8. The textile machine (1) according to claim 7, wherein the machine control section (53A) is adapted to cancel a state in which the input of the setting values is prohibited when the input end information is received.
 9. The textile machine (1) according to any one of claim 1 through claim 8, wherein the machine control section (53A) is adapted to control the inter-machine communicating section (53C) to periodically transmit continuation information after the input start information has been transmitted to the other textile machine (1) until the state in which the input of the setting values is enabled ends, the continuation information being information notifying that the state in which the input of the setting values is enabled continuing.
 10. The textile machine (1) according to claim 9, wherein the machine control section (53A) is adapted to cancel the state in which the input of the setting values is prohibited when receipt of the periodically transmitted continuation information is interrupted.
 11. The textile machine (1) according to any one of claim 1 through claim 10, wherein the machine control section (53A) is adapted to determine whether or not to transmit to the fiber processing unit (10, 30, 40), the input setting values or the setting values received via the inter-machine communicating section (53C).
 12. The textile machine (1) according to any one of claim 1 through claim 11, wherein the machine control section (53A) is adapted to accept from the input section (51), whether or not to transmit the setting values as confirmation information when transmitting the setting values to the other textile machine (1), and to change information to be transmitted based on whether or not to transmit as the confirmation information, the confirmation information being information indicating that confirmation as to whether or not to reflect the setting values in the other textile machine (1) is required.
 13. The textile machine (1) according to claim 12, wherein the machine control section (53A) is adapted to change processing of the setting values based on whether or not the setting values received via the inter-machine communicating section (53C) have been transmitted as the confirmation information.
 14. The textile machine (1) according to claim 12 or claim 13, wherein the machine control section (53A) is adapted to hold storing of the setting values in the storage section (57) until an input whether or not to reflect is made in the input section (51) when the setting values received via the inter-machine communicating section (53C) are transmitted as the confirmation information, and to store the setting values in the storage section (57) when the setting values

are not transmitted as the confirmation information.

15. The textile machine (1) according to any one of claim 1 through claim 12, wherein the machine control section (53A) is adapted to hold storing of the setting values in the storage section (57) until an input whether or not to reflect the setting values is made in the input section (51) when the setting values are received via the inter-machine communicating section (53C), and to store the setting values in the storage section (57) when an input to reflect is made in the input section (51). 5 10
16. The textile machine (1) according to claim 14 or claim 15, further comprising a second notifying section (51) adapted to notify an operator of information, wherein the machine control section (53A) is adapted to control the second notifying section (51) to notify hold information when an input not to reflect is made in the input section (51), the hold information notifying that the setting values are not to be reflected. 15 20
17. A textile machine system (90) comprising a plurality of the textile machines (1) according to any one of claim 1 through claim 16, wherein the textile machines (1) are arranged to be communicable with one another. 25
18. An updating method of setting values in a textile machine (1) comprising at least one fiber processing unit (10, 30, 40), and a management device (50) including an input section (51) adapted to accept an input of various types of information, a storage section (57) adapted to store the setting values as various processing conditions, and an inter-machine communicating section (53C) adapted to enable communication with other textile machine (1), the setting values being accepted via the input section (51), the updating method comprising: 30 35 40
a controlling step by the management device (50) of controlling the inter-machine communicating section (53C) to transmit input start information to the other textile machine (1) when an input of the setting values is enabled, the input start information notifying that the input of the setting values is enabled; and 45
a controlling step by the management device (50) of controlling the inter-machine communicating section (53C) to transmit the setting values to the other textile machine (1). 50
19. The updating method according to claim 18, wherein the management device (50) determines that the input of the setting values is enabled when an authentication section (53C) authenticates a specified user, the authentication section (53C) being adapted to authenticate the specified user based on authenti- 55

cation information input to the input section (51).

20. The updating method according to claim 18 or claim 19, further comprising a prohibiting step by the management device (50) of prohibiting the input of the setting values when the input start information is received via the inter-machine communicating section (53C).

FIG. 1

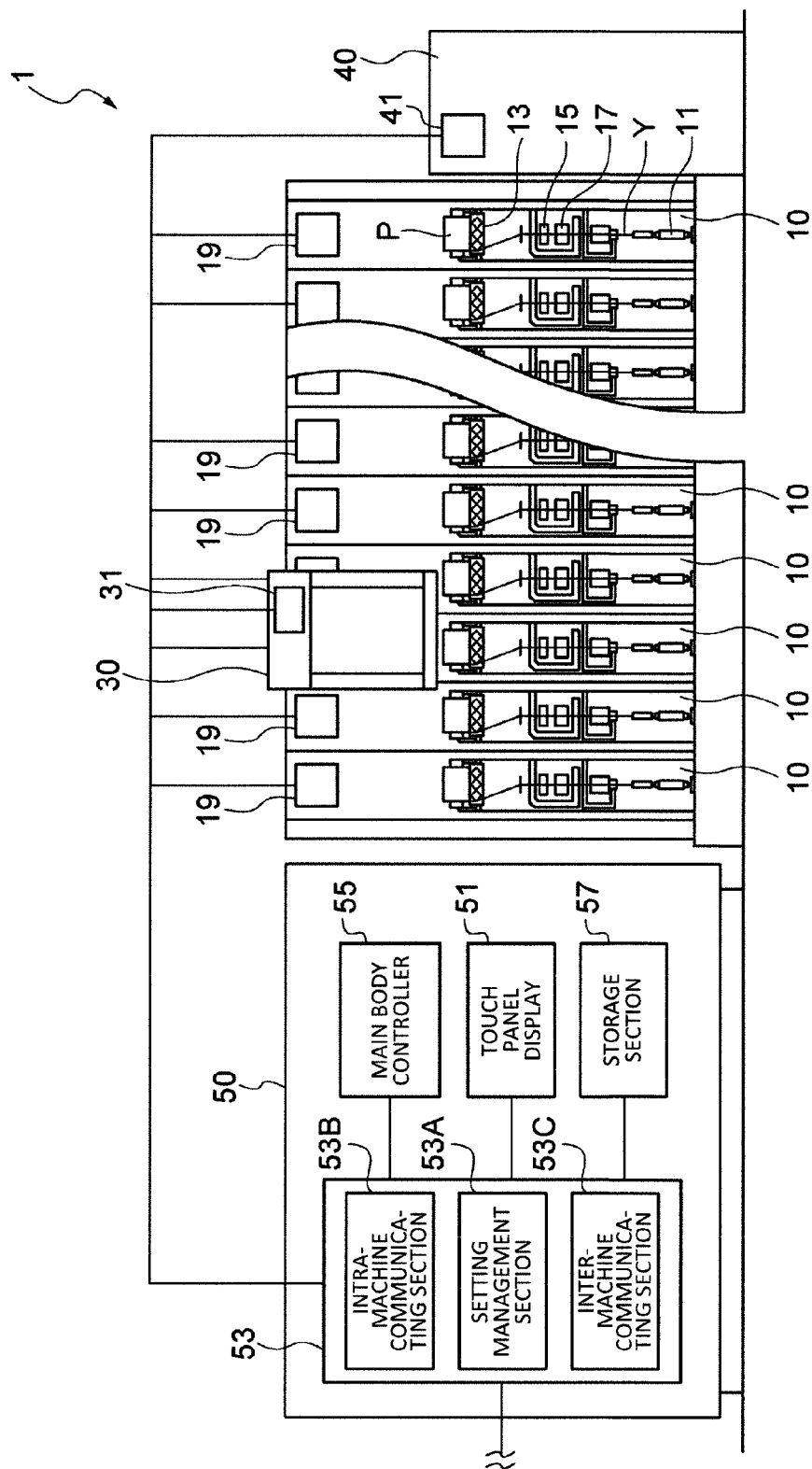


FIG. 2

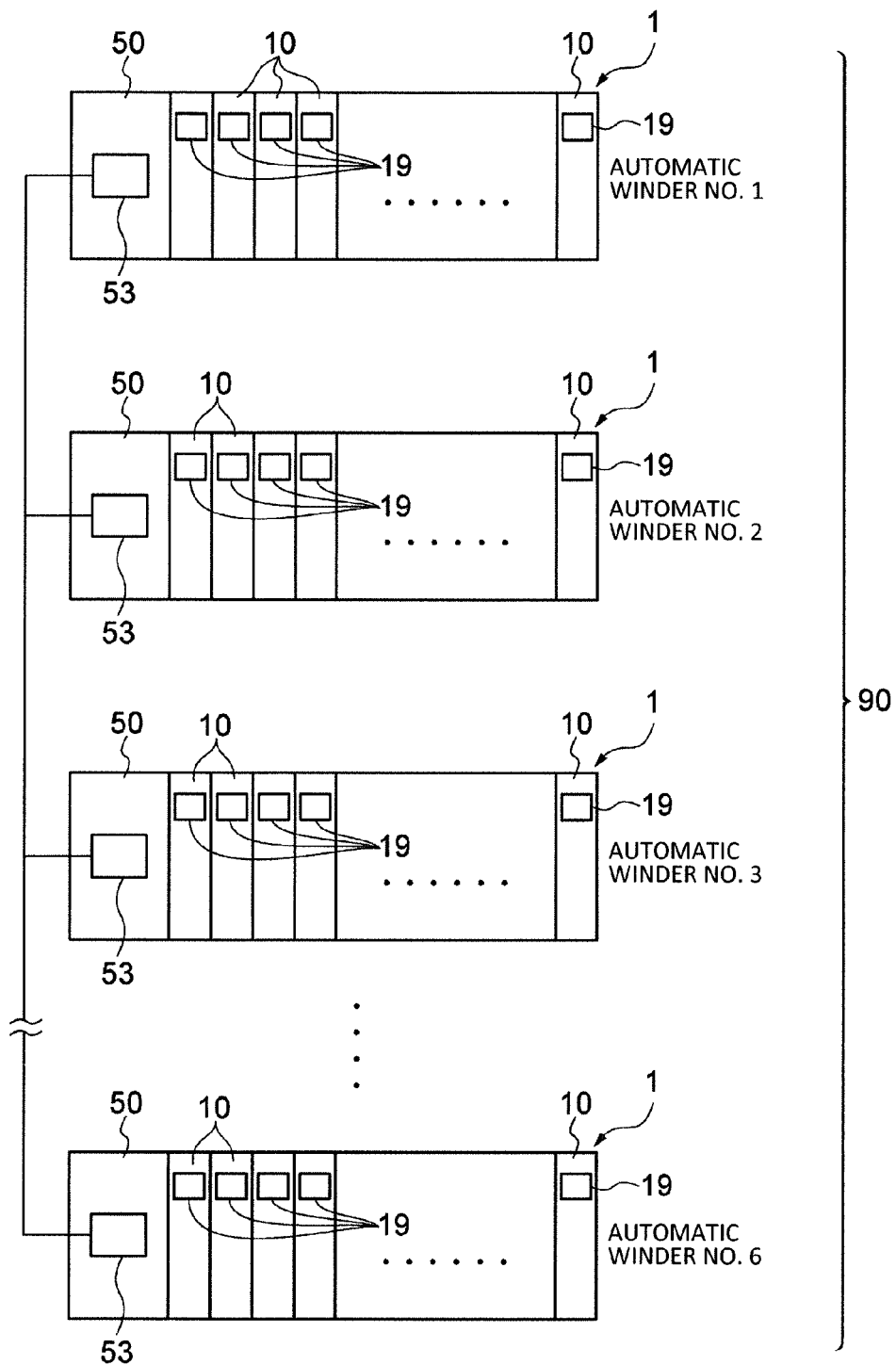


FIG. 3

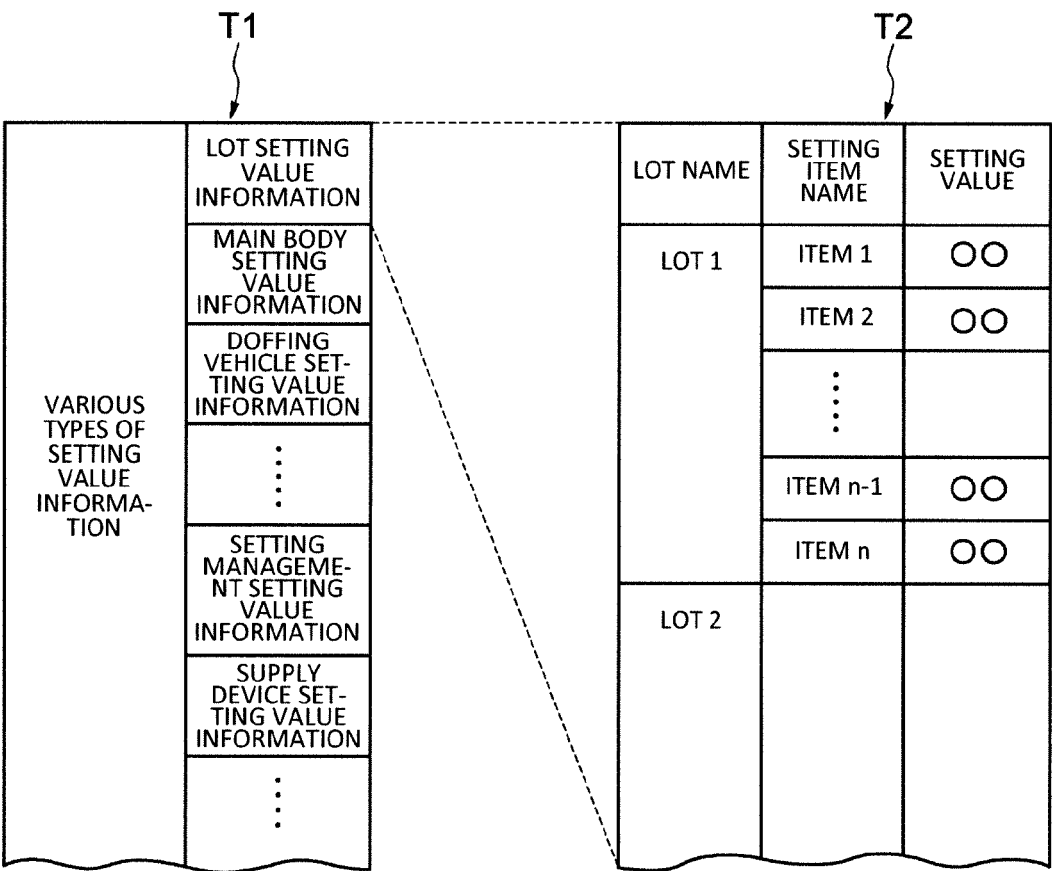


FIG. 4

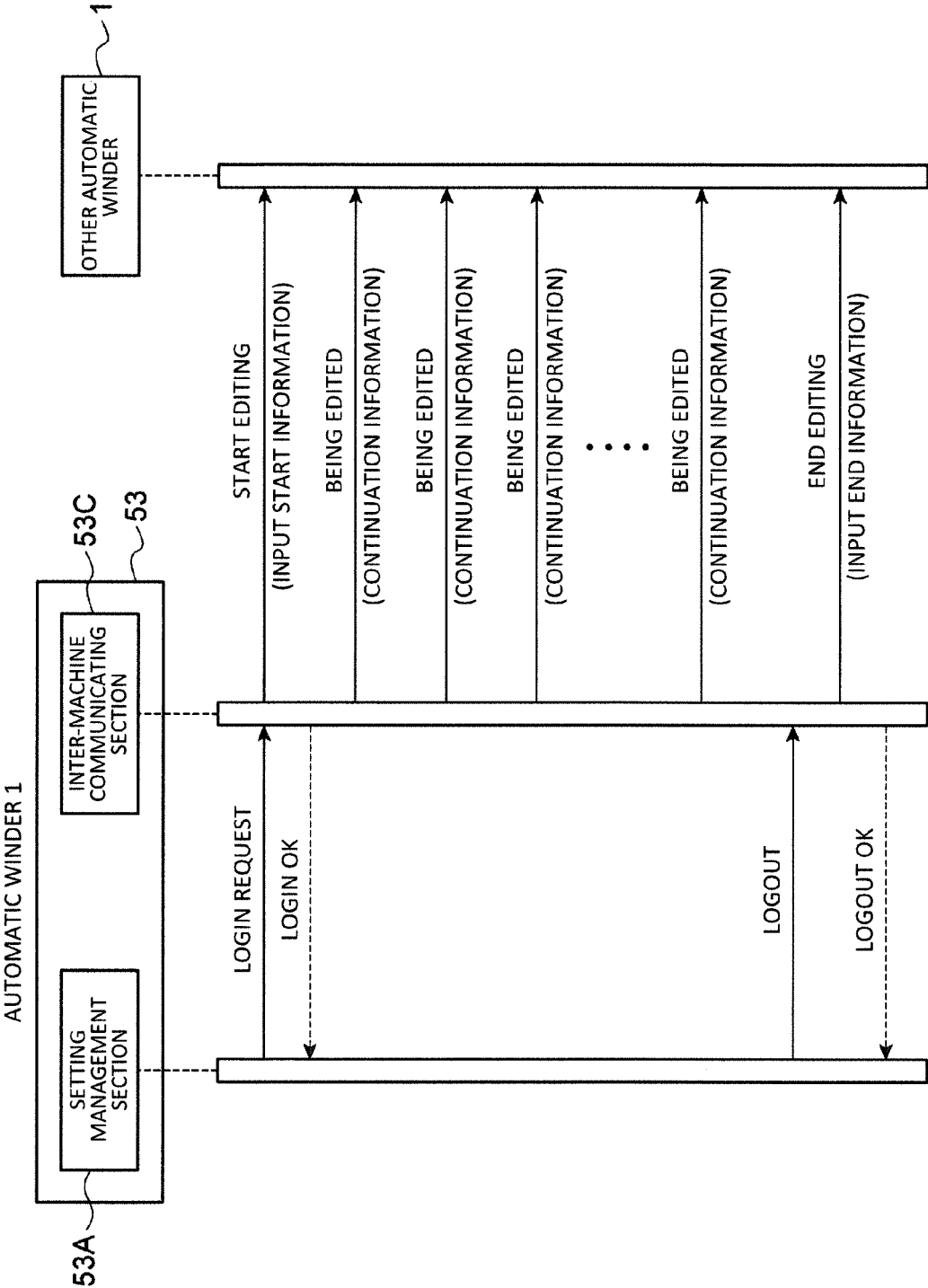


FIG. 5

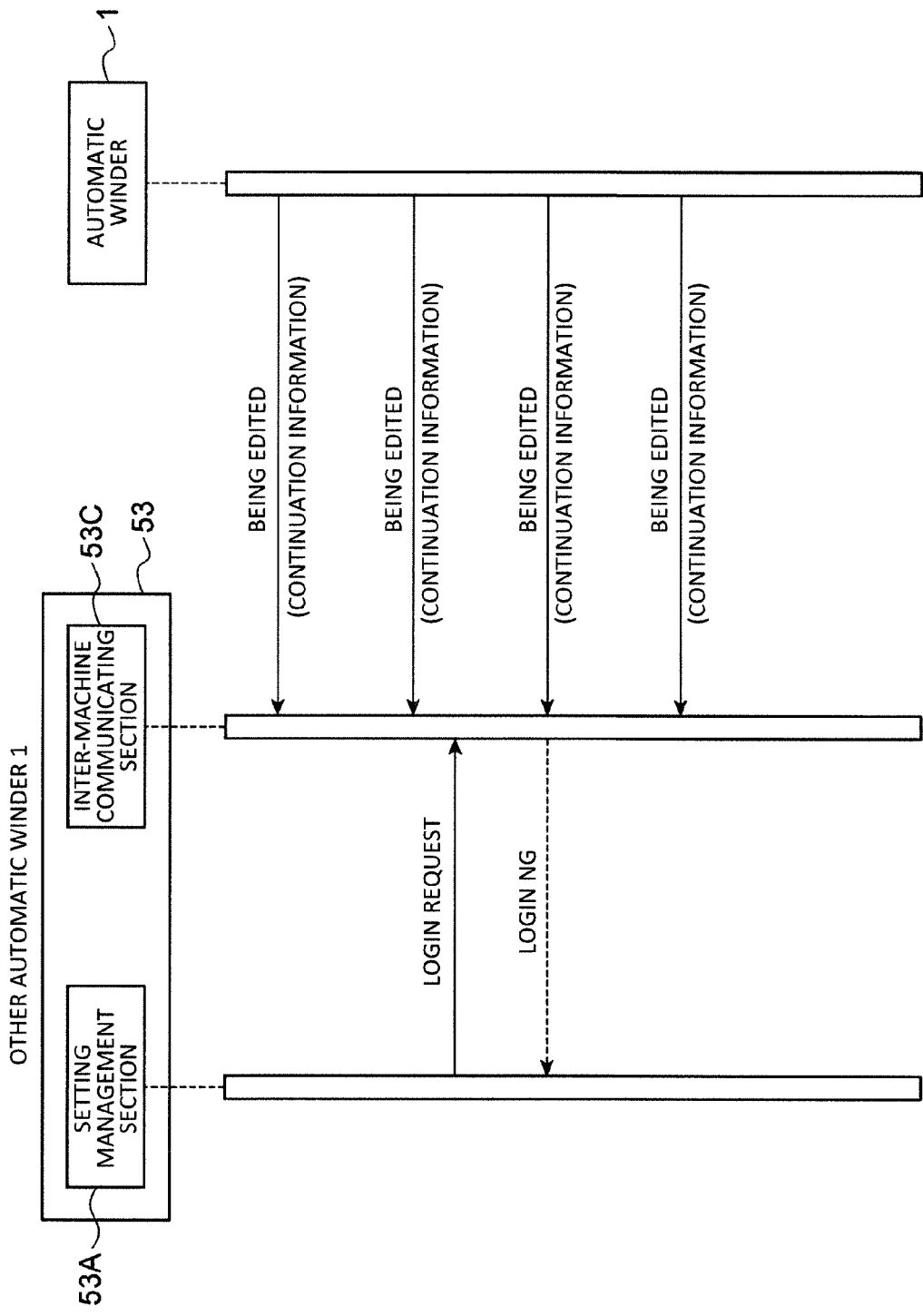


FIG. 6

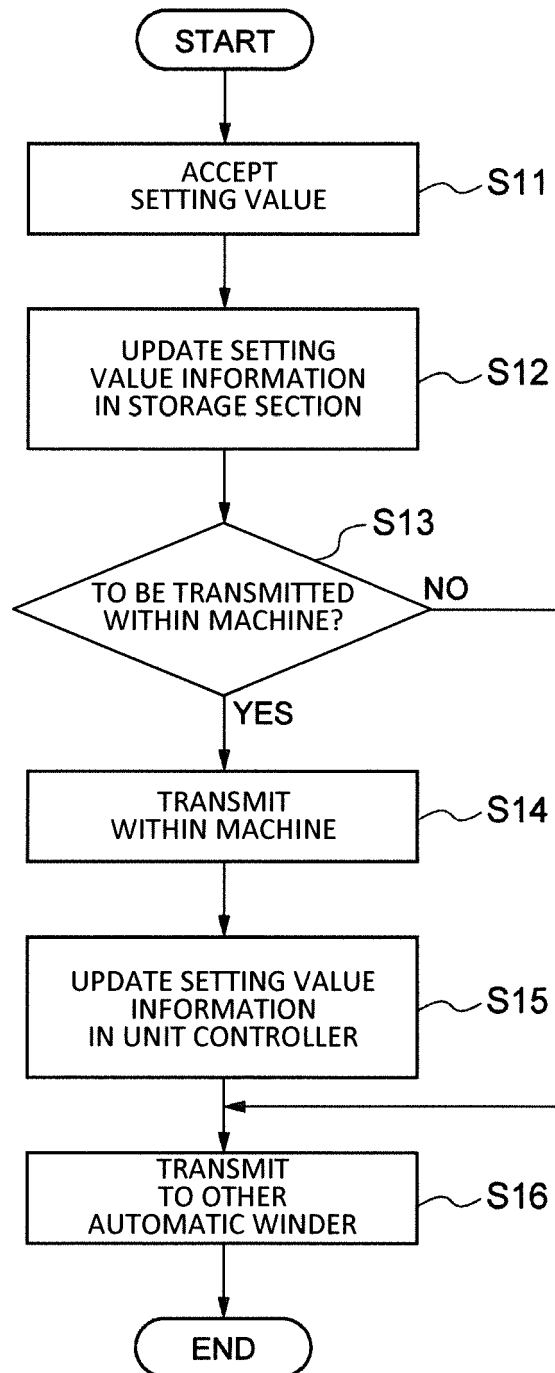


FIG. 7

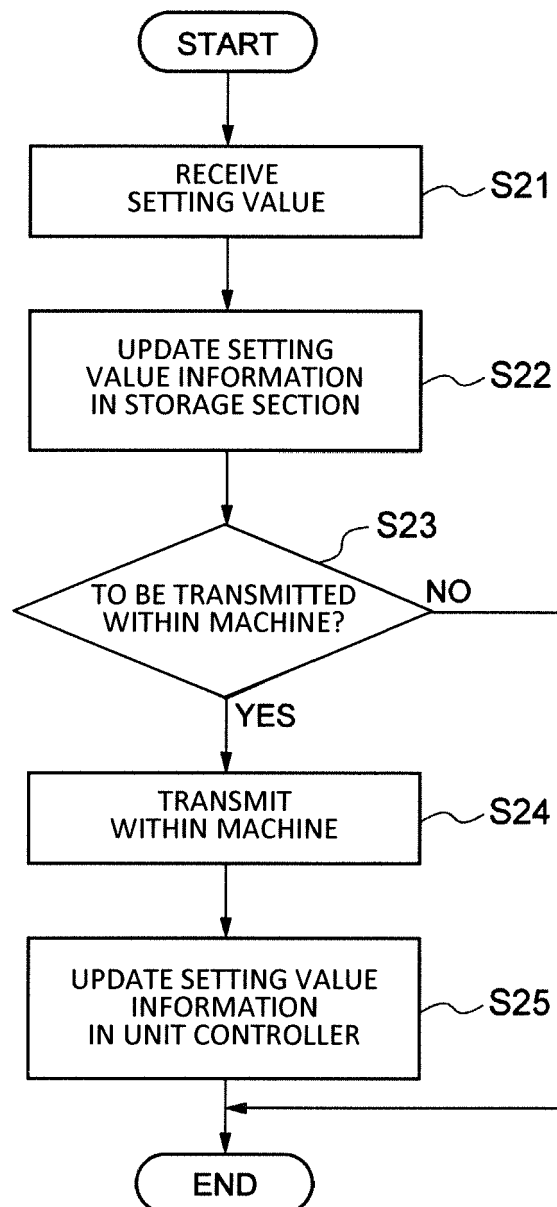


FIG. 8A

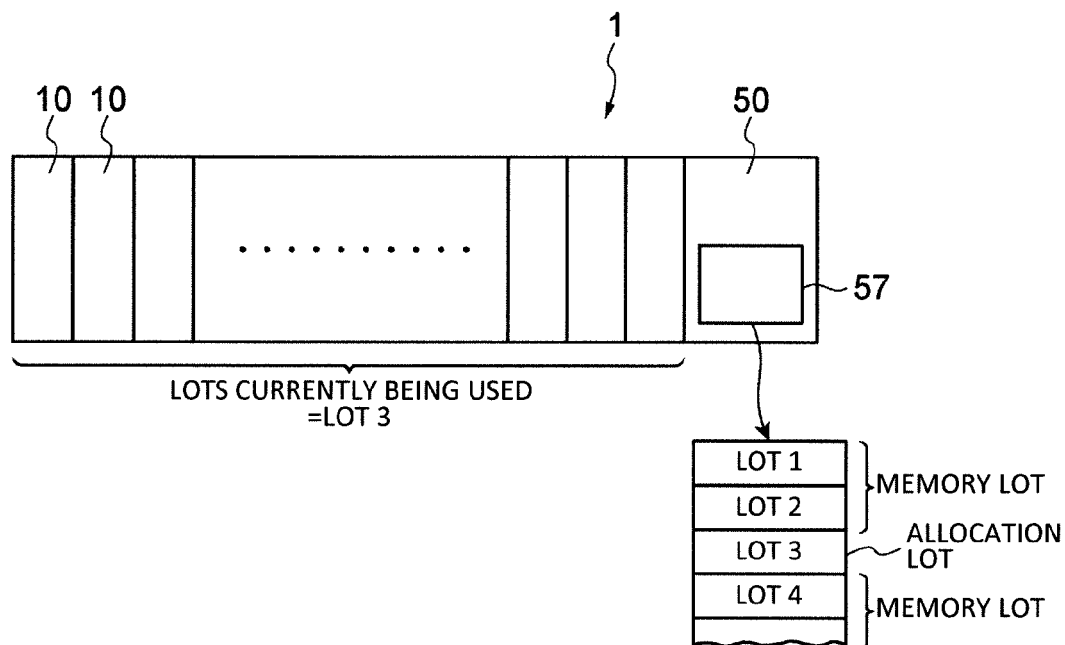


FIG. 8B

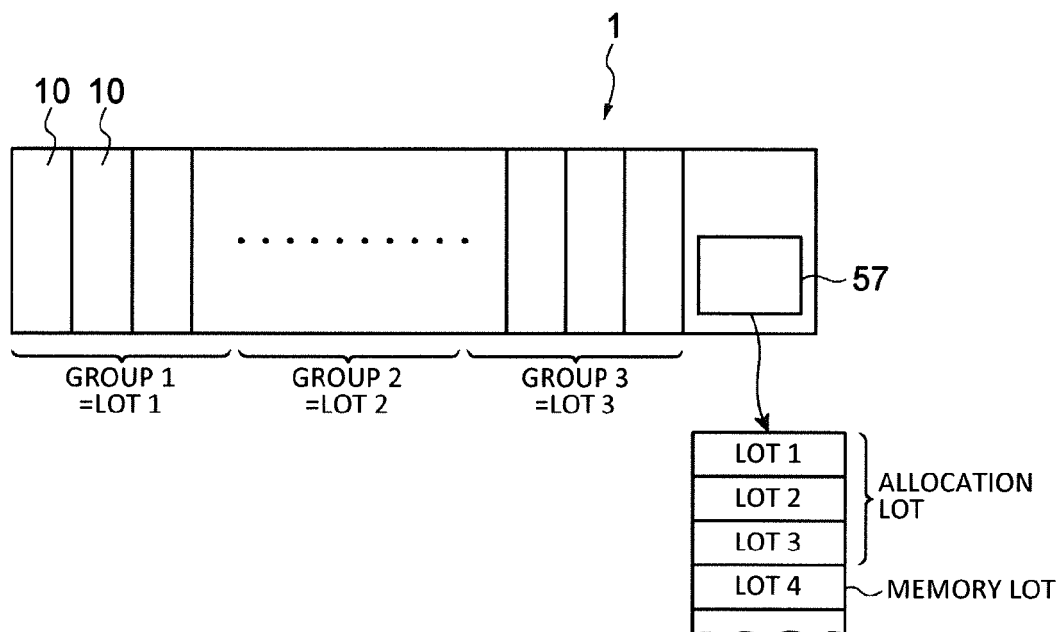


FIG. 9

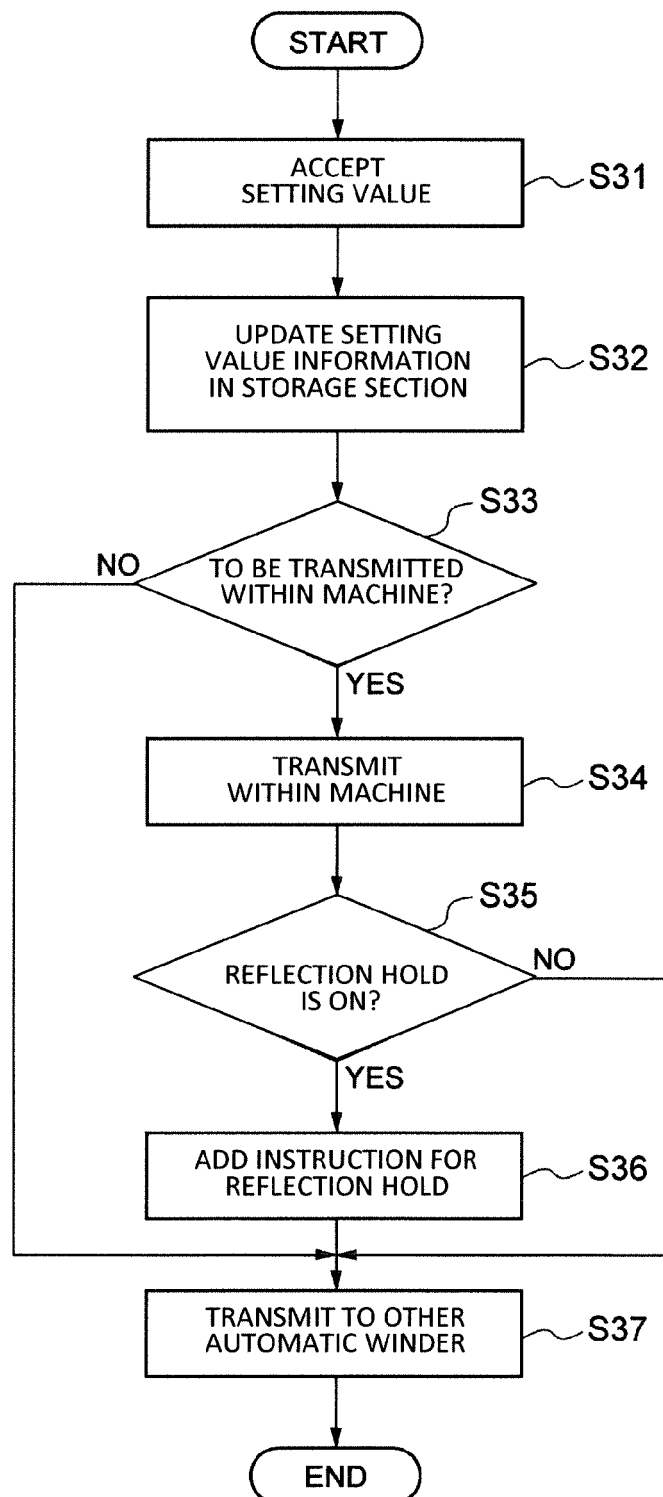


FIG. 10

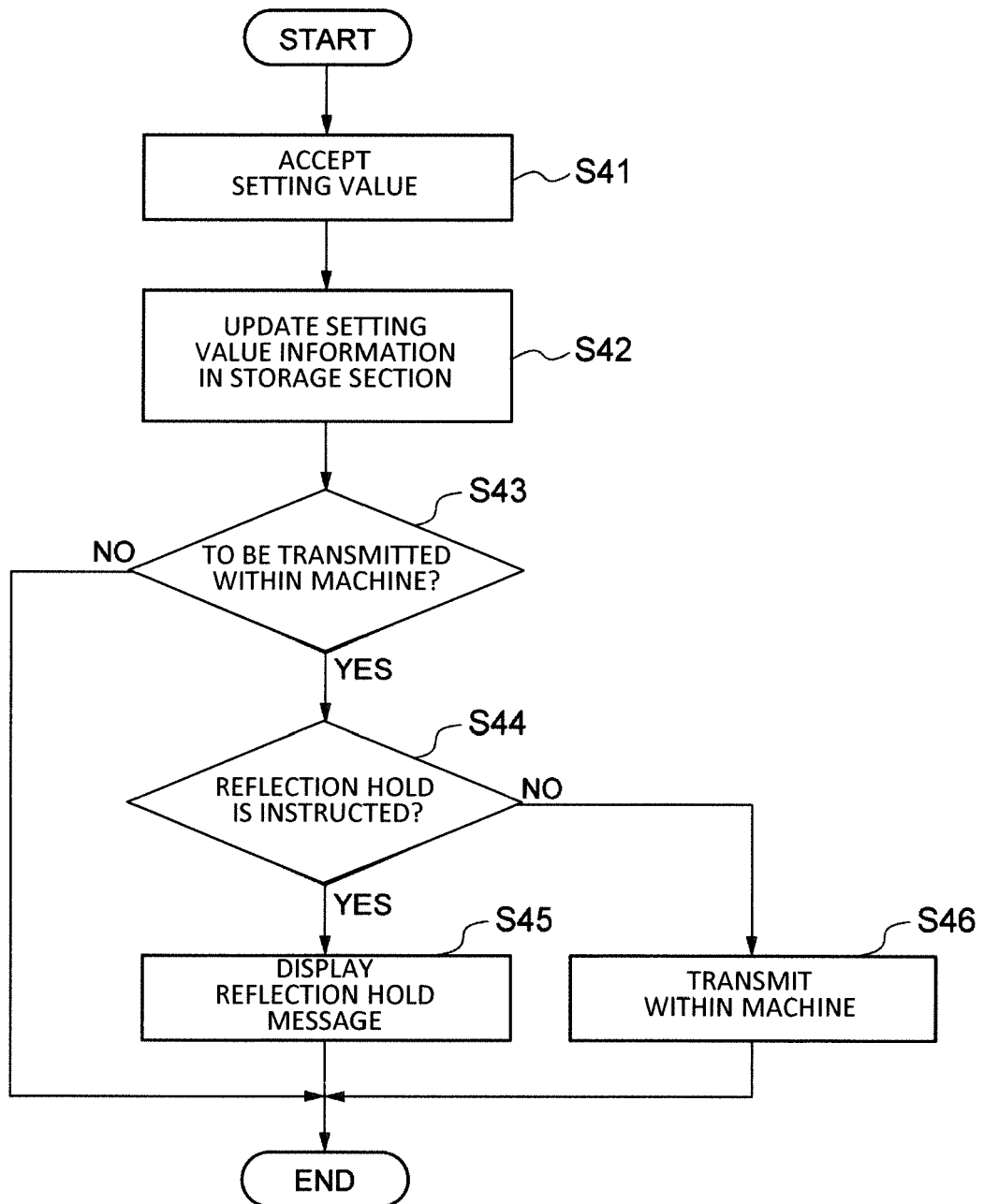


FIG. 11A

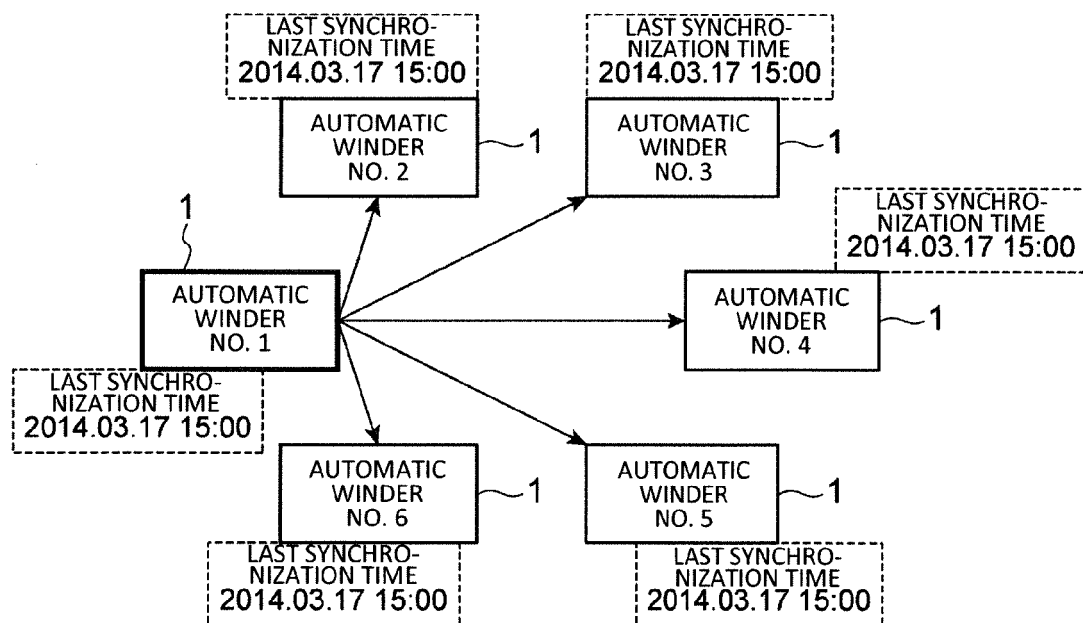


FIG. 11B

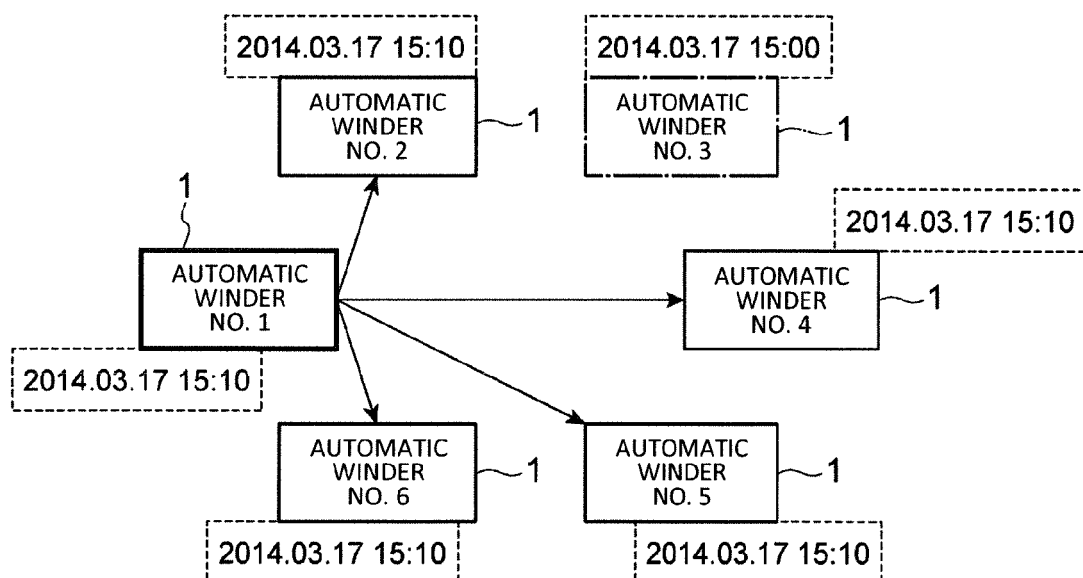


FIG. 12A

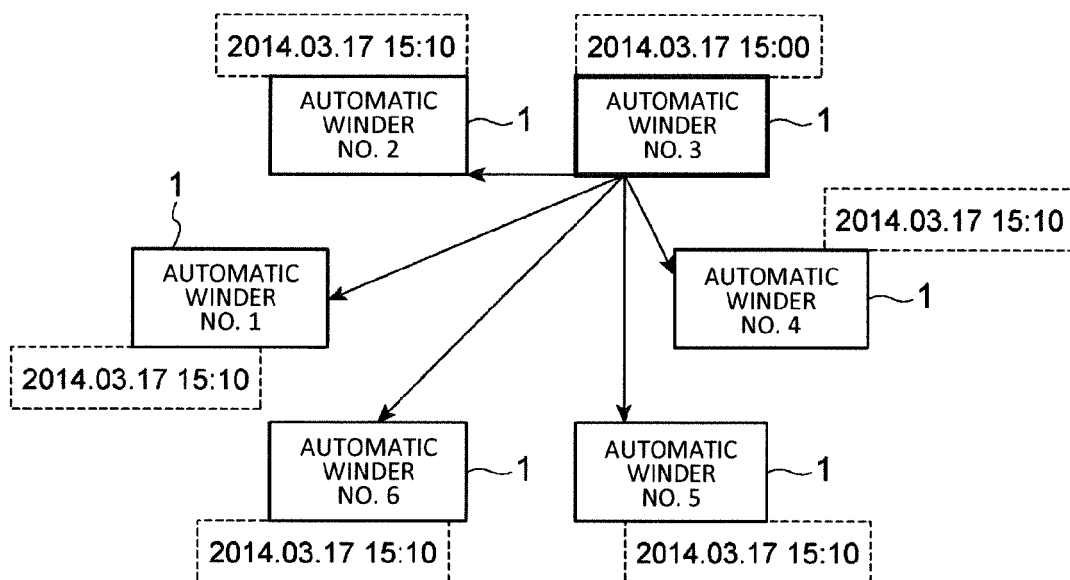
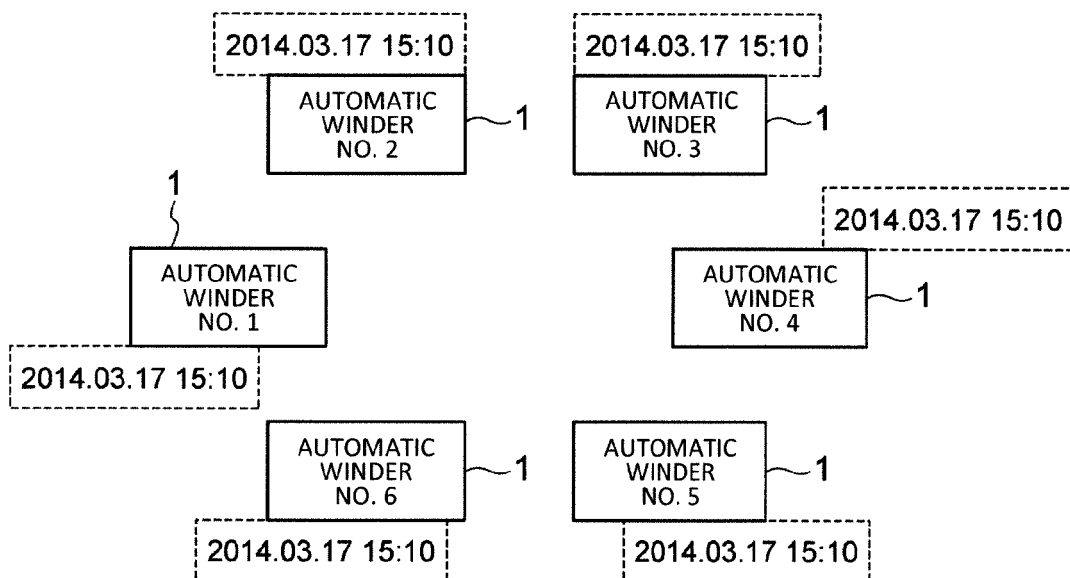


FIG. 12B



REFERENCES CITED IN THE DESCRIPTION

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