CLAIMS

1. A collator comprising:

three or more paper feed racks arranged in a vertical direction, each of which allows a large number of paper sheets to be stacked;

feed-out mechanisms that are correlated with the paper feed racks, respectively, each of the feed-out mechanisms performs a primary paper feed by which a leading end of one paper sheet of the paper sheets stacked on a correlated paper feed rack of the paper feed racks is protruded from leading ends of the other paper sheets, and a secondary paper feed by which one paper sheet having a leading end protruded by the primary paper feed is fed out from the correlated paper feed rack;

a common conveyance path that conveys the paper sheets fed out by the plurality of feed-out mechanisms, respectively;

detectors that are provided in a manner to be correlated with the paper feed racks respectively, and which detect a state in which the paper sheets stacked on the correlated paper feed racks have run out;

feed-out control means that operates a feed-out mechanism correlated with a paper feed rack having a valid setting, out of the plurality of paper feed racks, at a timing predetermined in a manner such that the paper sheets fed out by the feed-out mechanism overlap with the paper

sheets fed out by another feed-out mechanism on the common conveyance path; and

setting change means that, if one detector of the detectors detects a state in which the paper sheets have run out and if a timing of the detecting is within a permissible starting period that is predetermined as a time obtained by subtracting both a time required to perform the primary paper feed once and an extra time from a single cycle of a paper feed timing, cancels the valid setting of the paper feed rack correlated with the one detector, and that if the correlated paper feed rack and a paper feed rack one stage upper than the correlated paper feed rack toward an upstream side of the common transport path have the setting of continuous feed and if the paper feed rack one stage upper toward the upstream side is removed, changes from an invalid setting to a valid setting for a paper feed rack one more stage upper than the paper feed rack one stage upper toward the upstream side of the common transport path.

2. A control program for a computer that controls the collator comprising:

three or more paper feed racks aligned in a vertical direction, each of which allows a large number of paper sheets to be stacked;

feed-out mechanisms that are correlated with the paper feed racks, respectively, each of the feed-out mechanisms

performs a primary paper feed by which a leading end of one paper sheet of the paper sheets stacked on a correlated paper feed rack of the paper feed racks is protruded from leading ends of the other paper sheets, and a secondary paper feed by which one paper sheet having a leading end protruded by the primary paper feed is fed out from the correlated paper feed rack;

a common conveyance path that conveys the paper sheets fed out by the feed-out mechanisms, respectively;

detectors that are provided in a manner to be correlated with the paper feed racks respectively, and which detect a state in which the paper sheets stacked on the correlated paper feed racks have run out;

the control program for causing the computer to function as:

feed-out control means that operates a feed-out mechanism correlated with a paper feed rack having a valid setting, out of the plurality of paper feed racks, at a timing predetermined in a manner such that the paper sheets fed out by the feed-out mechanism overlap with the paper sheets fed out by another feed-out mechanism on the common conveyance path; and

setting change means that, if one detector of the detectors detects a state in which the paper sheets have run out and if a timing of the detecting is within a permissible starting period that is predetermined as a time obtained by subtracting a time required to perform the

primary paper feed once and an extra time from a cycle of a paper feed timing, cancels the valid setting of the paper feed rack correlated with the one detector, and that if the correlated paper feed rack and a paper feed rack one stage upper than the correlated paper feed rack toward an upstream side of the common transport path have the setting of continuous feed and if the paper feed rack one stage upper toward the upstream side is removed, changes from an invalid setting to a valid setting for a paper feed rack one more stage upper than the paper feed rack one stage upper toward the upstream side of the common transport path.