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Laval et al.

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(54) **METHOD AND SYSTEM FOR MANAGING
ATTRACTION ADMISSION**

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patent shall be extended for 0 days.

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G06F 17/60; G06K 5/00

(52) U.S. Cl. **700/91**; 345/326; 235/382;
705/5

(58) Field of Search 700/91; 705/5,
705/7; 345/326; 235/382

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Primary Examiner—William Grant

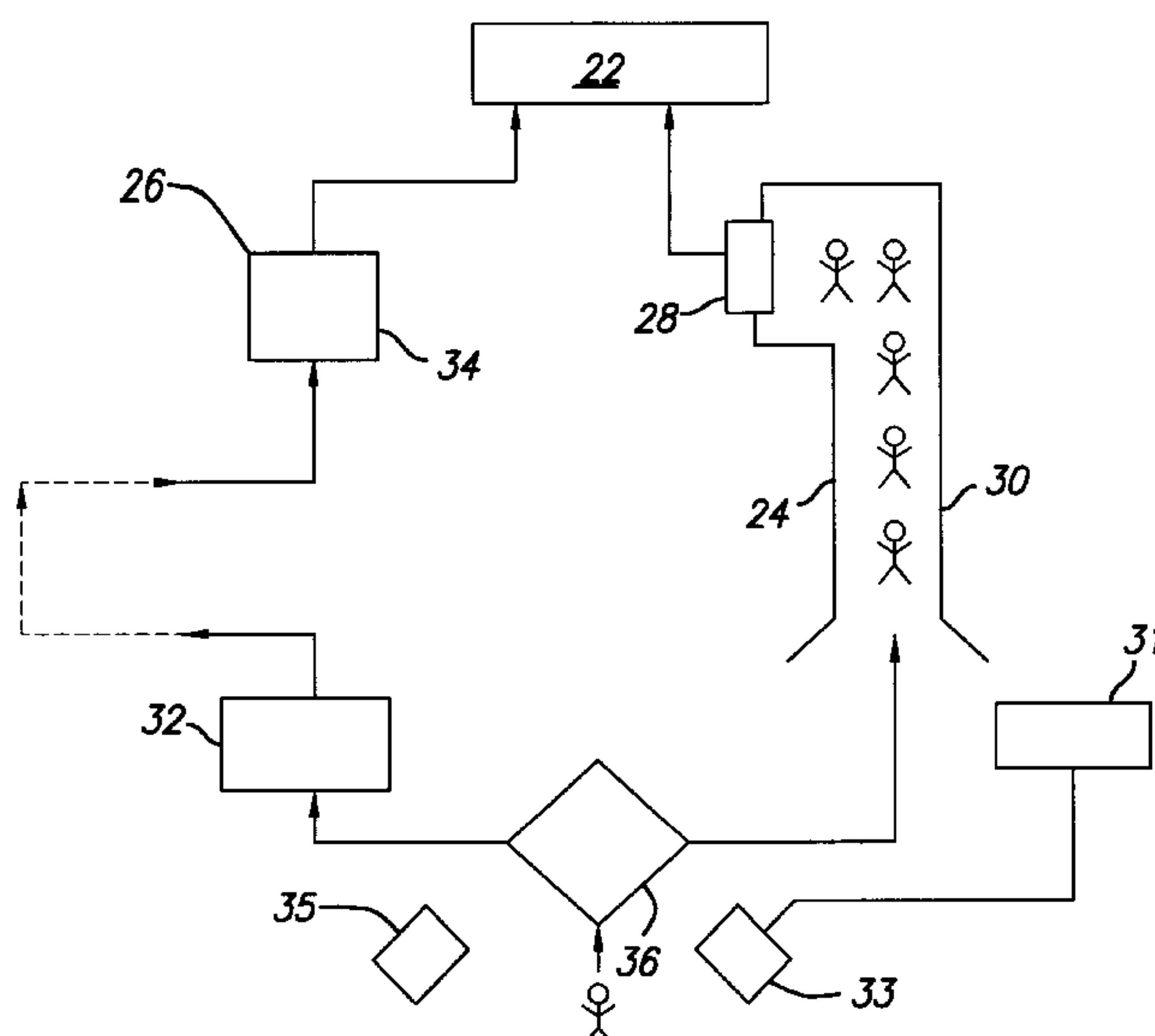
Assistant Examiner—Ronald D Hartman, Jr.

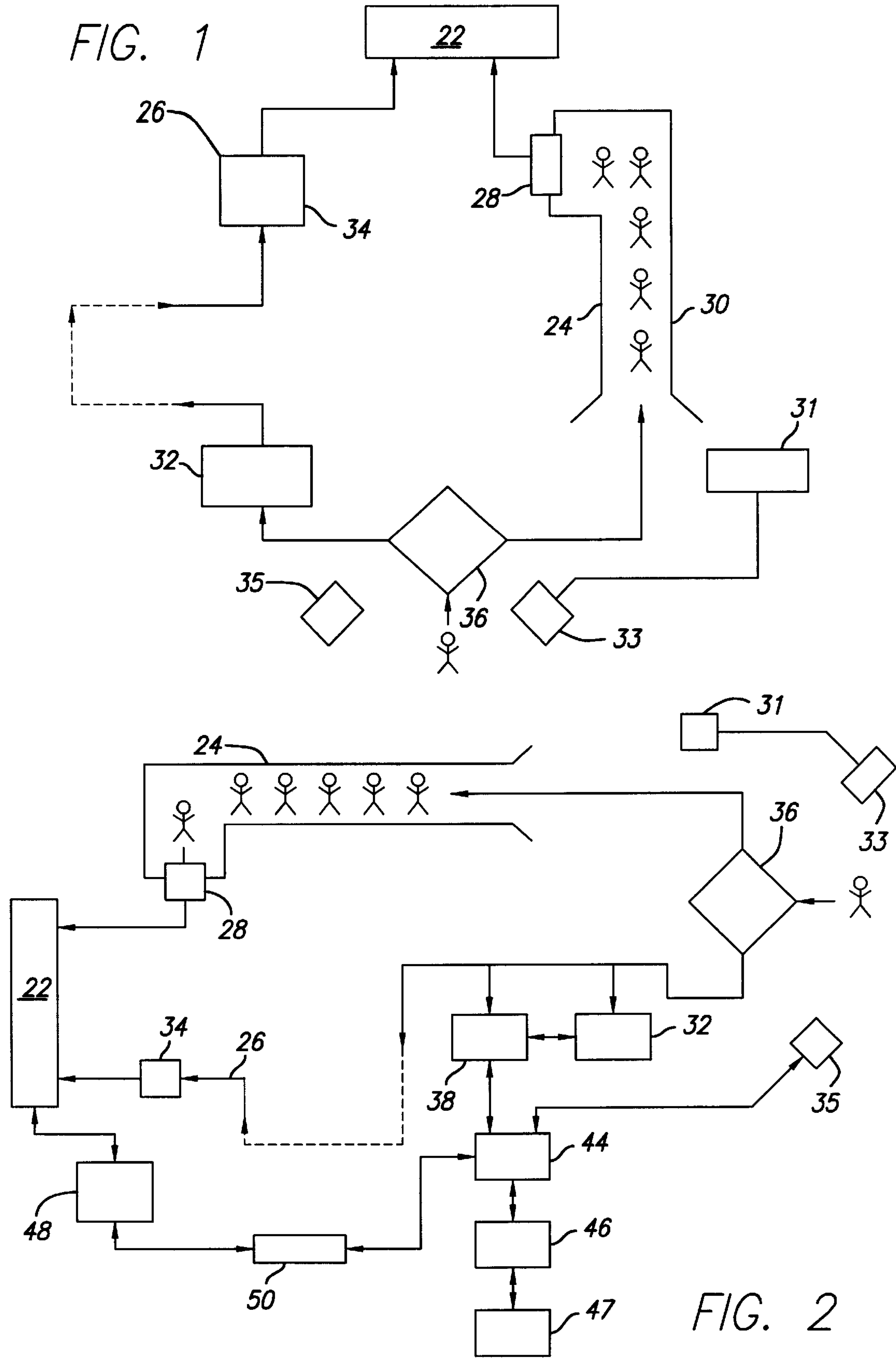
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(57) **ABSTRACT**

The invention is a method and system for managing admission to an attraction. In one or more embodiments, the system comprises a first queue by which customers may access the attraction by waiting in line and a second queue by which customers may access the attraction in a manner which avoids the first queue. The system includes a first validator for validating an entitlement of a customer to receive an assigned time in the future for accessing the attraction via the second queue, a media distributor for distributing a media to an entitled customer, the media including the assigned time at which the entitled customer is entitled to access the attraction in the future, and a second validator for validating the entitled customer access to the attraction at the time provided on the media. In accordance with a method of the invention, a customer may access an attraction in a manner which avoids standing in a first waiting line by verifying entitlement to utilize a second queue, obtaining a pass entitling the customer to access the attraction at a future time, and returning to the attraction at the future time and gaining access with the pass. In this method, the customer may leave the vicinity of the attraction between when the pass is issued and the future time at which the customer is entitled to access to the attraction.

171 Claims, 20 Drawing Sheets





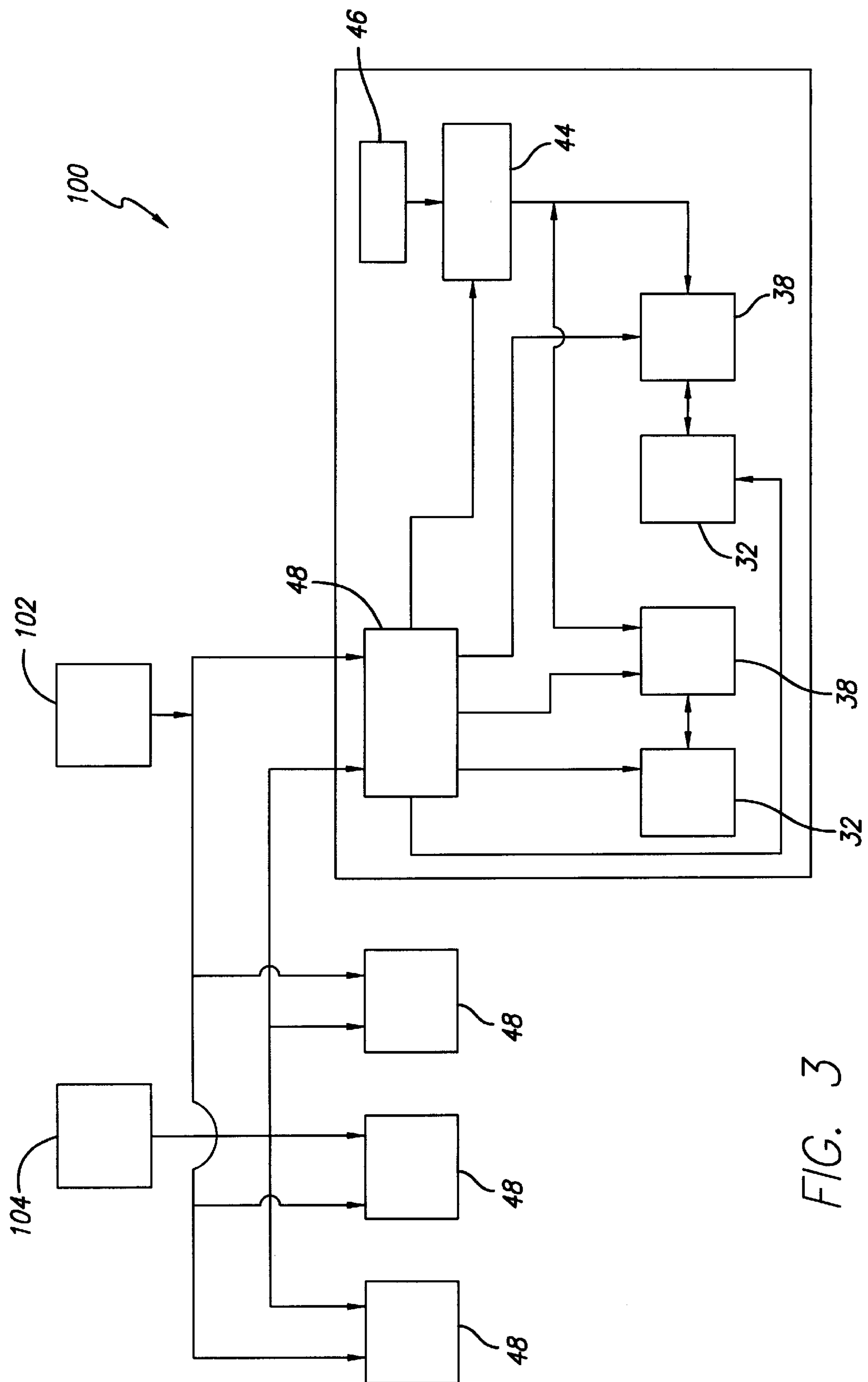


FIG. 3

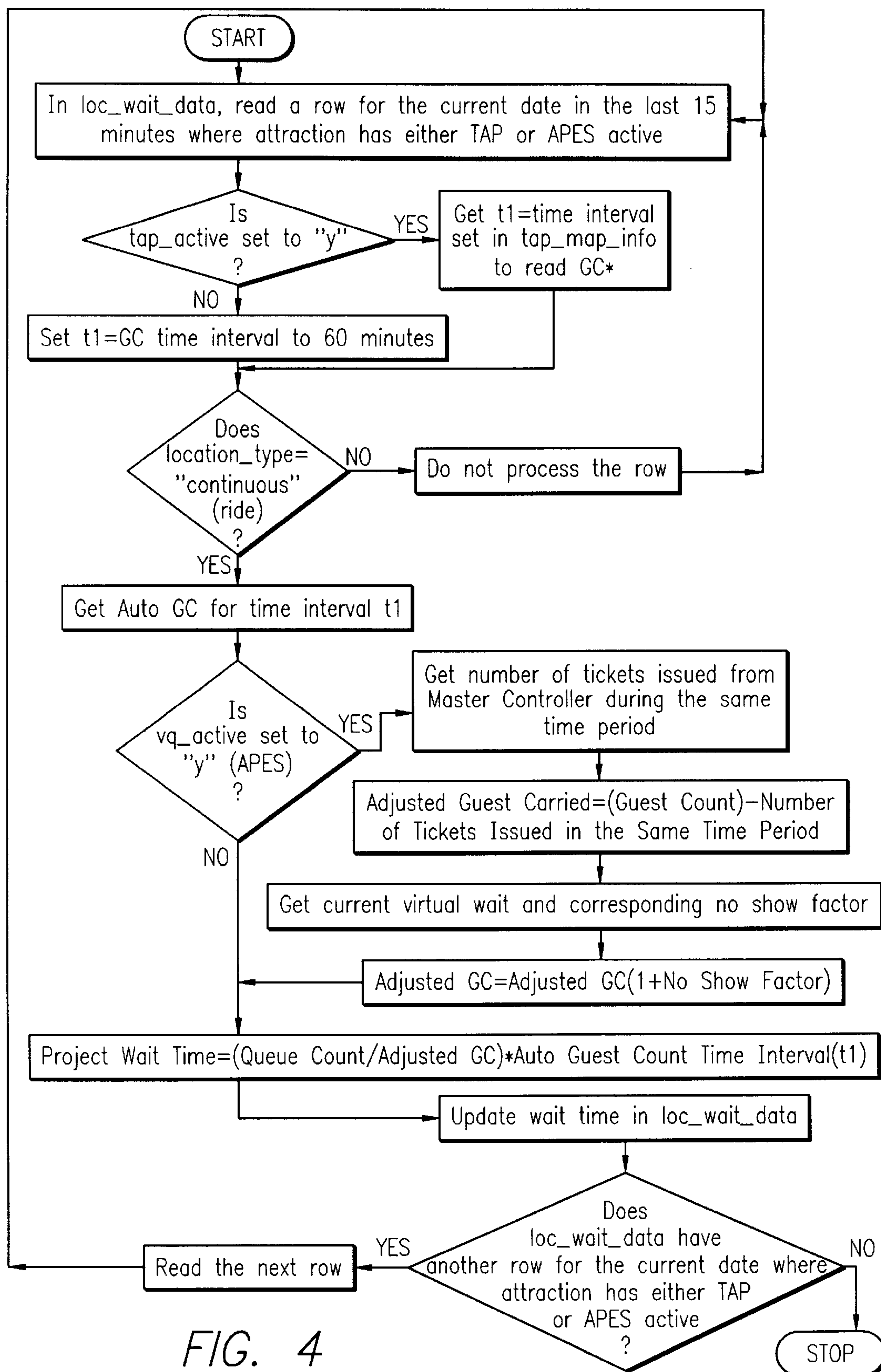


FIG. 5A

Table Name	Table Definition
contr_feed_info	Information about feed from Master Controller
opsheet_feed_info	Information about feed from OpSheet
vq_cle_forecast_info	Forecasted capacity limiting event (CLE) information, to forecast guest count
vq_disp_rate_log	Dispense rate log information. A row is inserted every time the dispense rate is calculated.
vq_error_log	Error log, for internal use only
vq_loc_daily_info	Location daily information, by location and date
vq_loc_port_info	Location-Port mapping table. To be updated by APES Admin only.
vq_loc_scenario	Location scenario override information for specific location, datetime and situation
vq_loc_schedule	Location calculation parameter schedule. Effective and expiration dates, along with schedule effective flag, specify whether to use schedule or default values.
vq_no_show_lookup	Lookup table for No Show factor, used in calculation of dispense rate. Defined for range of virtual queue wait time.
vq_scenario_info	Scenario setup information (Admin only)
vq_standby_wait	Standby wait information, for waitfree locations only

FIG. 5B

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
vq_cle_forecast	cle_type_id	integer	NULL	Capacity Limiting Event (CLE) type; usually 'U' indicating unit change	No	No
vq_cle_forecast	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_cle_forecast	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_cle_forecast	reading_time	integer	NULL	Time of "units" reading	No	No
vq_cle_forecast	vq_cle_forecast_id	serial	NOT NULL	Unique identifier (generated by the system) for CLE forecast information	Yes	No
vq_cle_forecast	vq_dispense_rate	integer	NULL	Dispense rate for given unit values	No	No
vq_cle_forecast	vq_loc_cle_type_id	integer	NULL	Type of CLE: Open, Close, Unit Change, Show, etc.	No	No
vq_cle_forecast	vq_loc_daily_id	integer	NOT NULL	Unique identifier (generated by the system) for location daily information	No	Yes
vq_cle_forecast	vq_loc_utilization	integer	NULL	Utilization of location (e.g. 80% utilization means the actual guest carried is 80% of total guest capacity)	No	No
vq_cle_forecast	vq_value_1	integer	NULL	Number of units	No	No
vq_cle_forecast	vq_value_2	integer	NULL	Number of special need units	No	No
vq_contr_feed_info	business_date	date	NULL	PC business date when feed was sent	No	No
vq_contr_feed_info	controller_feed_id	serial	NOT NULL	Unique serial ID (generated by the system) that identifies the Master Controller feed information	Yes	No
vq_contr_feed_info	error_no	integer	NULL	Error number from turnstile	No	No
vq_contr_feed_info	guest_window_end	datetime HOUR to MINUTE	NULL	Guest window end datetime, as printed on virtual queue (VQ) ticket	No	No
vq_contr_feed_info	guest_window_start	datetime HOUR to MINUTE	NULL	Guest window start datetime, as printed on VQ ticket	No	No
vq_contr_feed_info	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_contr_feed_info	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No

FIG. 5C

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
vq_contr_feed_info	no_of_tkt_issued	integer	NULL	Number of tickets issued in (?) time frame	No	No
vq_contr_feed_info	printer_number	char(2)	NULL	Printer number for VQ	No	No
vq_contr_feed_info	reading_time	integer	NULL	PC business time when feed sent, 0 to 2400	No	No
vq_contr_feed_info	vq_curr_wait_time	integer	NULL	Current wait time in minutes (e.g. 130 minutes)	No	No
vq_contr_feed_info	vq_disp_time_int	smallint	NULL	Ticket dispense time interval	No	No
vq_contr_feed_info	vq_dispense_rate	integer	NULL	Ticket dispense rate	No	No
vq_contr_feed_info	vq_gst_win_minutes	integer	NULL	Guest window minutes (the difference between guest window start and end; e.g. 60 minutes)	No	No
vq_contr_feed_info	vq_guest_count	integer	NULL	VQ guest count (?)	No	No
vq_contr_feed_info	vq_loc_port_id	integer	NULL	Unique serial ID (generated by the system) that identifies the location/attraction	No	Yes
vq_contr_feed_info	vq_mc_processed	char(1)	NULL	Whether Master Controller information is processed by OpSheet (Y/N)	No	No
vq_contr_feed_info	vq_min_wait_time	smallint	NULL	Minimum wait time set for the attraction (e.g. 40 minutes)	No	No
vq_disp_rate_log	dis_reduction_fact	smallint	NULL	Factor by which distribution of ticket dispensing should be reduced during downtime	No	No
vq_disp_rate_log	dispense_rate	integer	NULL	Virtual queue ticket dispense rate	No	No
vq_disp_rate_log	forecast_gc	integer	NULL	Forecasted guest carried, used in calculations	No	No
vq_disp_rate_log	forecast_time_min	smallint	NULL	Time interval to forecast guest count	No	No
vq_disp_rate_log	last_update_time	datetime YEAR to FRACTION(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_disp_rate_log	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_disp_rate_log	location_id	integer	NULL	OpSheet location ID, from location_info	No	No
vq_disp_rate_log	noshow_factor_pcnt	smallint	NULL	Percent of people that do not show up for a given virtual wait time, applied in the calculations to adjust dispense rate	No	No
vq_disp_rate_log	percent_capacity	smallint	NULL	Percent of location's total capacity for VQ (e.g. 80%)	No	No
vq_disp_rate_log	thrc	integer	NULL	Location's theoretical hourly ride capacity (THRC)	No	No

FIG. 5D

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
vq_disp_rate_log	utilization_pcnt	smallint	NULL	Location utilization percent, used for computing actual capacity from THRC	No	No
vq_disp_rate_log	value_1	smallint	NULL	Number of regular units forecasted	No	No
vq_disp_rate_log	vq_disp_rate_id	serial	NOT NULL	Unique identifier for dispense rate log	Yes	No
vq_disp_rate_log	vq_disp_time_int	smallint	NULL	Dispense time interval (e.g. 5 minutes)	No	No
vq_disp_rate_log	vq_loc_port_id	integer	NOT NULL	Unique identifier for APES location	No	Yes
vq_error_log	comments	varchar(80)	NULL	Error log description	No	No
vq_error_log	error_log_id	serial	NOT NULL	System-generated error log ID	Yes	No
vq_error_log	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_error_log	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_error_log	program_name	char(30)	NULL	Name of program on which error occurred	No	No
vq_error_log	sql_isamcode	integer	NULL	SQL ISAM error code	No	No
vq_error_log	sqlcode	integer	NULL	SQL error code	No	No
vq_error_log	vq_lan_address	char(2)	NULL	LAN address, as specified by Ride and Show for the location Master Controller (MC)	No	No
vq_error_log	vq_loc_port_id	integer	NULL	Location identifier on which error occurred	No	No
vq_error_log	vq_park_address	char(2)	NULL	Park address. May be different from park code, specified by Ride and Show for location MC.	No	No
vq_loc_daily_info	business_date	date	NULL	Business date	No	No
vq_loc_daily_info	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_loc_daily_info	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_loc_daily_info	vq_loc_daily_id	serial	NOT NULL	Unique identifier (generated by the system) for location daily information	Yes	No
vq_loc_daily_info	vq_loc_port_id	integer	NULL	Unique identifier for location	No	Yes
vq_loc_port_info	dis_reduction_fact	smallint	NULL	Factor by which distribution of ticket dispensing should be reduced during downtime	No	No

FIG. 5E

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
vq_loc_port_info	do_abuse_check	char	NULL	Whether abuse check should be performed or not	No	No
vq_loc_port_info	downtime_effective	char	NULL	Flag to indicate whether downtime is currently effective	No	No
vq_loc_port_info	forecast_time_min	integer	NULL	Guest count forecast time interval (usually 60 minutes)	No	No
vq_loc_port_info	ftp_arg1	char(10)	NULL	ftp user-id to connect to Bridge server	No	No
vq_loc_port_info	ftp_arg2	char(10)	NULL	ftp password to connect to Bridge server	No	No
vq_loc_port_info	ftp_script_name	varchar(50)	NULL	ftp script to trigger ftp data from Parks-APES server to Bridge server	No	No
vq_loc_port_info	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_loc_port_info	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_loc_port_info	location_number	char(4)	NOT NULL	Location number (as used by IEs in OpSheet)	No	No
vq_loc_port_info	origin_id	integer	NOT NULL	Origin identifier of park, as in OpSheet	No	No
vq_loc_port_info	override_effective	char	NULL	Flag to indicate whether scenario override is effective	No	No
vq_loc_port_info	park_code	char(2)	NULL	Park code: AK, MK, EC, ST	No	No
vq_loc_port_info	percent_capacity	smallint	NULL	Percent of the location's total capacity for VQ (e.g. 80%)	No	No
vq_loc_port_info	schedule_effective	char	NULL	Flag to indicate whether scenario schedule is effective	No	No
vq_loc_port_info	server_name	varchar(30)	NOT NULL	Name of the Bridge server dedicated to this location/attraction	No	No
vq_loc_port_info	survey_time_min	integer	NULL	Survey time in minutes (same as forecasted time in minutes)	No	No
vq_loc_port_info	vq_close_time	datetime HOUR to MINUTE	NULL	Actual close time of attraction	No	No
vq_loc_port_info	vq_disp_time_int	smallint	NULL	Dispense time interval in minutes, used to increase the guest window	No	No
vq_loc_port_info	vq_gst_win_min	integer	NULL	Minutes during which guest can visit the location. Time is between guest_window_start and guest_window_end.	No	No
vq_loc_port_info	vq_lan_address	char(2)	NOT NULL	Attraction name (coded) where VQ is functional	No	No
vq_loc_port_info	vq_loc_port_id	serial	NOT NULL	Unique serial ID (generated by the system) that identifies	Yes	No

FIG. 5F

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
				the VQ attraction/park		
vq_loc_port_info	vq_loc_utilization	smallint	NULL	Location utilization percent, used for computing actual capacity from THRC	No	No
vq_loc_port_info	vq_max_gst_count	integer	NULL	Maximum guest count used in the calculations for dispense rate	No	No
vq_loc_port_info	vq_min_before_cls	integer	NULL	Number of minutes before close to stop printing VQ tickets	No	No
vq_loc_port_info	vq_min_down_time	integer	NULL	Minimum down time to be used while creating downtime scenario	No	No
vq_loc_port_info	vq_min_gst_count	integer	NULL	Minimum guest count used in the calculations for dispense rate	No	No
vq_loc_port_info	vq_min_wait_time	integer	NULL	Minimum virtual wait time (e.g. 40 minutes)	No	No
vq_loc_port_info	vq_park_address	char(2)	NOT NULL	Park name (coded) where VQ is functional	No	No
vq_loc_port_info	vq_soft_close_time	datetime HOUR to MINUTE	NULL	The time at which VQ stops printing tickets (close_time - min_before_cls)	No	No
vq_loc_scenario	expected_uptime	integer	NULL	Expected uptime (absolute) from location down situation	No	No
vq_loc_scenario	gst_win_minutes	smallint	NULL	Guest window (in minutes)	No	No
vq_loc_scenario	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_loc_scenario	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_loc_scenario	percent_capacity	smallint	NULL	Percent of location's total capacity for VQ (e.g. 80%)	No	No
vq_loc_scenario	vq_disp_time_int	smallint	NULL	VQ ticket dispense time interval (5 minutes)	No	No
vq_loc_scenario	vq_dispense_rate	integer	NULL	Number of tickets to dispense in vq_disp_time_int	No	No
vq_loc_scenario	vq_loc_port_id	integer	NULL	Unique location identifier	No	Yes
vq_loc_scenario	vq_loc_scenario_id	serial	NOT NULL	Unique identifier (generated by the system) for location scenario information	Yes	No
vq_loc_scenario	vq_scenario_id	integer	NOT NULL	Unique scenario identifier	No	Yes
vq_loc_scenario	vq_scn_eff_date	date	NULL	Scenario effective date	No	No
vq_loc_scenario	vq_scn_eff_time	integer	NULL	Scenario effective time	No	No

FIG. 5G

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
vq_loc_schedule	effective_date	date	NULL	Schedule effective datetime	No	No
vq_loc_schedule	effective_time	datetime HOUR to MINUTE	NULL	Schedule effective time	No	No
vq_loc_schedule	expiration_date	date	NULL	Schedule expiration datetime	No	No
vq_loc_schedule	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_loc_schedule	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_loc_schedule	percent_capacity	smallint	NULL	Percent capacity used for VQ guest count calculations	No	No
vq_loc_schedule	vq_close_time	datetime hour to minute	NULL	Actual close time of the attraction	No	No
vq_loc_schedule	vq_disp_time_int	smallint	NULL	VQ ticket dispense time interval (in minutes)	No	No
vq_loc_schedule	vq_dispense_rate	integer	NULL	VQ ticket dispense rate	No	No
vq_loc_schedule	vq_gst_win_min	integer	NULL	Guest window (in minutes)	No	No
vq_loc_schedule	vq_loc_port_id	integer	NOT NULL	Unique serial ID (generated by the system) that identifies the VQ attraction/park	No	Yes
vq_loc_schedule	vq_loc_schedule_id	serial	NOT NULL	Unique serial ID (generated by the system) that identifies the attraction schedule	Yes	No
vq_loc_schedule	vq_wait_time	integer	NULL	Current virtual queue wait time	No	No
vq_no_show_lookup	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_no_show_lookup	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_no_show_lookup	noshow_factor_pcnt	smallint	NOT NULL	Percent factor to be used to adjust Distribution Percent (DPS). Increment dispense rate by this factor.	No	No
vq_no_show_lookup	vq_loc_port_id	integer	NOT NULL	Unique serial ID (generated by the system) that identifies the VQ attraction/park	No	Yes
vq_no_show_lookup	vq_no_show_id	serial	NOT NULL	System-generated ID value for no show	Yes	No

FIG. 5H

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
p						
vq_no_show_looku p	vq_wait_minutes_fm	smallint	NOT NULL	VQ wait minutes from	No	No
vq_no_show_looku p	vq_wait_minutes_to	smallint	NOT NULL	VQ wait minutes to	No	No
vq_opsheet_feed	business_date	date	NULL	Current business date	No	No
vq_opsheet_feed	feed_type	char(1)	NULL	Indicates if this is an OpSheet_feed(O), override row from scenario(S), downtime override (D)	No	No
vq_opsheet_feed	feed_write_time	datetime hour to second	NULL	Time at which OpSheet performed write/sent the file	No	No
vq_opsheet_feed	guest_window_end	datetime hour to minute	NULL	Guest window end time	No	No
vq_opsheet_feed	guest_window_start	datetime hour to minute	NULL	Guest window start time	No	No
vq_opsheet_feed	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_opsheet_feed	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_opsheet_feed	opsheet_feed_id	serial	NOT NULL	Unique serial ID (generated by the system) for opsheet_feed_info table	Yes	No
vq_opsheet_feed	vq_curr_wait_time	integer	NULL	Current virtual wait time (in minutes)	No	No
vq_opsheet_feed	vq_disp_time_int	smallint	NULL	Dispense time interval (e.g. 5 minutes)	No	No
vq_opsheet_feed	vq_dispense_rate	integer	NULL	Ticket dispense rate, as recommended by OpSheet	No	No
vq_opsheet_feed	vq_gst_win_minutes	integer	NULL	VQ guest window minutes (e.g. 60 minutes)	No	No
vq_opsheet_feed	vq_guest_count	integer	NULL	Guest count to be used for all calculations	No	No
vq_opsheet_feed	vq_loc_port_id	integer	NOT NULL	Unique serial ID (generated by the system) for vq_loc_port_info table	No	Yes
vq_opsheet_feed	vq_loc_scenario_id	integer	NULL	Unique identifier (generated by the system) for location	No	Yes

FIG. 51

Column Table Name	Column Name	Column Datatype	Column Null Option	Column Comment	Column Is PK	Column Is FK
				scenario information		
vq_opsheet_feed	vq_min_wait_time	integer	NULL	Minimum wait time at virtual queue (e.g. 40 minutes)	No	No
vq_opsheet_feed	vq_ops_processed	char(1)	NULL	Row processed (sent to Bridge server for Master Controller), Y/N	No	No
vq_scenario_info	last_update_time	datetime year to fraction(5)	NOT NULL	Datetime when the record was last updated	No	No
vq_scenario_info	last_update_user	char(8)	NOT NULL	User ID that updated the record last	No	No
vq_scenario_info	scenario_desc	varchar(60)	NULL	Scenario description	No	No
vq_scenario_info	scenario_name	char(25)	NULL	Unique scenario name, not associated with any attraction	No	No
vq_scenario_info	vq_scenario_id	serial	NOT NULL	Unique identifier (generated by the system) for scenario information	Yes	No

Location Down Time

Park

DISNEY'S ANIMAL KINGDOM

Loc Port ID: 2

Minimum Down Time: 15

Location

WILDLIFE EXPRESS CONSERVATION STATION

Expected Up Time

11:25

none

Execute

Current Time

4/23/99 11:09:12

FIG. 6

Wait Free Administration

Park

DISNEY'S ANIMAL KINGDOM

Location

WILDLIFE EXPRESS - CONSERVATION STATION

2

Daily Forecast

No Show LookUp

Location Scheduling

← April 1999 →

Su Mo Tu We Th Fr Sa

1 2 3

4 5 6 7 8 9 10

11 12 13 14 15 16 17

18 19 20 21 22 23 24

25 26 27 28 29 30

4

Time	Value 1	Value 2	Dispense Rate	Loc Utilization
08:00				

FIG. 7A

Wait Free Administration

Park

DISNEY'S ANIMAL KINGDOM

Location

WILDLIFE EXPRESS - CONSERVATION STATION

2

Daily Forecast

No Show LookUp

Location Scheduling

Loc Port Id	No Show Id	Ontime Minutes For	Ontime Minutes to Noshow	Factor Pcnt	Last Update User
2	1	0	20	10	DDJ1
2	2	31	60	15	DDJ1
2	3	61	200	18	DDJ1

FIG. 7B

Wait Free Administration

Park

DISNEY'S ANIMAL KINGDOM

Location

WILDLIFE EXPRESS - CONSERVATION STATION

2

Daily Forecast

No Show LookUp

Location Scheduling

Loc Port Id	Loc Schedule Id	Effective Date	Expiration Date	Effective Time	% Capacity
2	1	4/26/00	5/1/00	10:20	

FIG. 7C

Wait Free Location Information

Park

DISNEY'S ANIMAL KINGDOM

Location

WILDLIFE EXPRESS - CONSERVATION STATION

Override Effective

Do Abuse Check

Schedule Effective

Y

Close

Save

Override Effective:

Min Wait Time:

40

Min Down Time:

40

Schedule Effective:

Dis Reduction Fact:

10

Percent Capacity:

80

Downtime Effective:

N

Min Gst Count:

1800

Disp Time Int:

5

Do Abuse Check:

Y

Max Gst Count:

2400

Forecast Time Min:

60

Minutes Before Close:

Loc Utilization:

75

Close Time:

21:45

Last Update:

PRS2

4/22/99 17:48:35

Soft Close Time:

FIG. 8

Location Port Information

Loc Port	Park Id	Lan Address	Location	Origin	Server Name
2	AK	01	WILDLIFE EXPRESS - CONSERVATION STATION	DISNEY'S ANIMAL KINGDOM	ctxserver

Vq Loc Port Id: 2

Do Abuse Check: Y

Override Effective:

Min Wait Time: 40

Park Address: AK

Vq Close Time: 21:45:00

Schedule Effective:

Dis Reduction Fact: 10

Lan Address: 01

Soft close time:

Downtime Effective: N

Min Gst Count: 1800

Location Number: WE - Cons S

Minutes Before Closing:

Max Gst Count: 2400

Origin: DISNEY'S ANIMAL KINGDOM

Vq Disp Time Int: 5

Min Down Time: 15

Server Name: ctxserver

Forecast Time Min: 60

Percent Capacity: 80

Park Code: AK

Survey Time Min: 60

Loc Utilization: 75

Ftp Script Name: ctx

Ftp Arg1:

Ftp Arg2:

Last Update User: PRS2

4/22/99 17:48:35

FIG. 9

FIG. 10

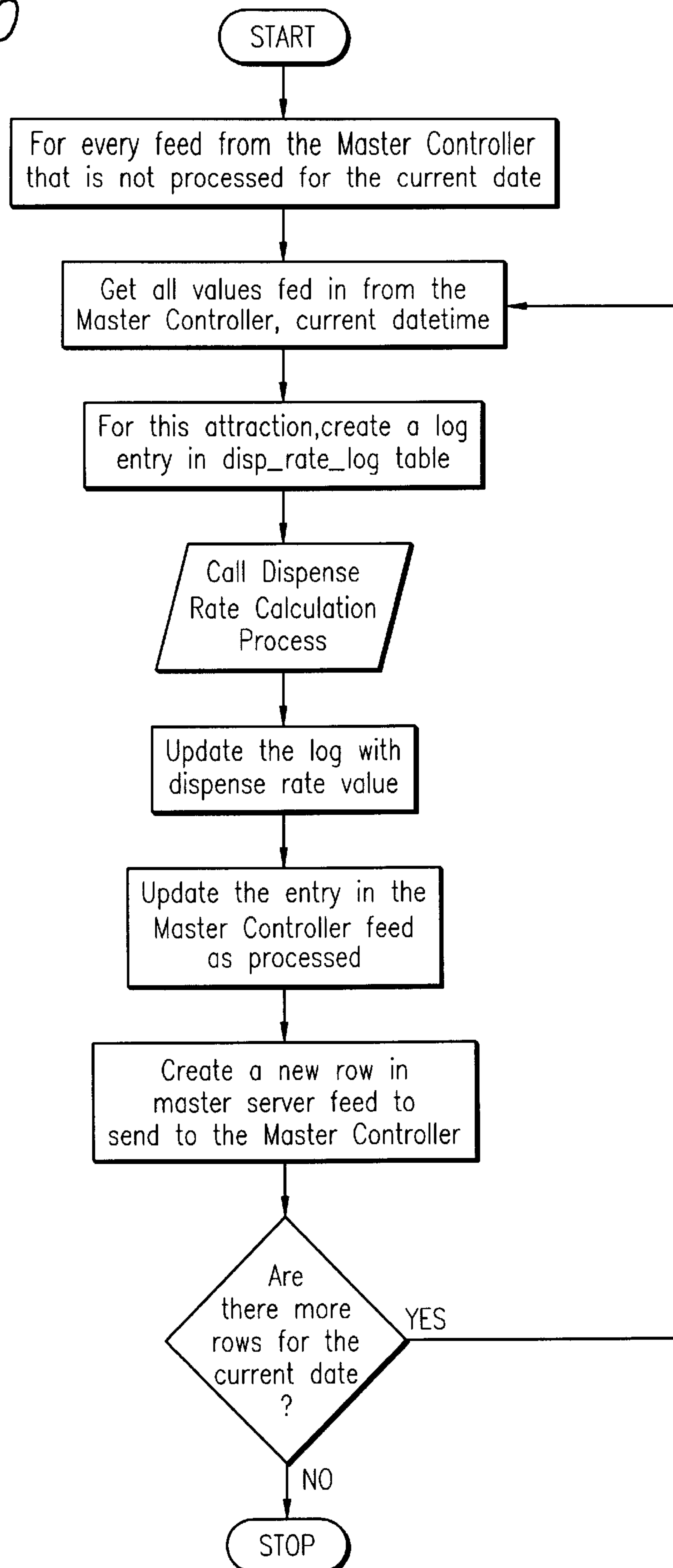


FIG. 11A

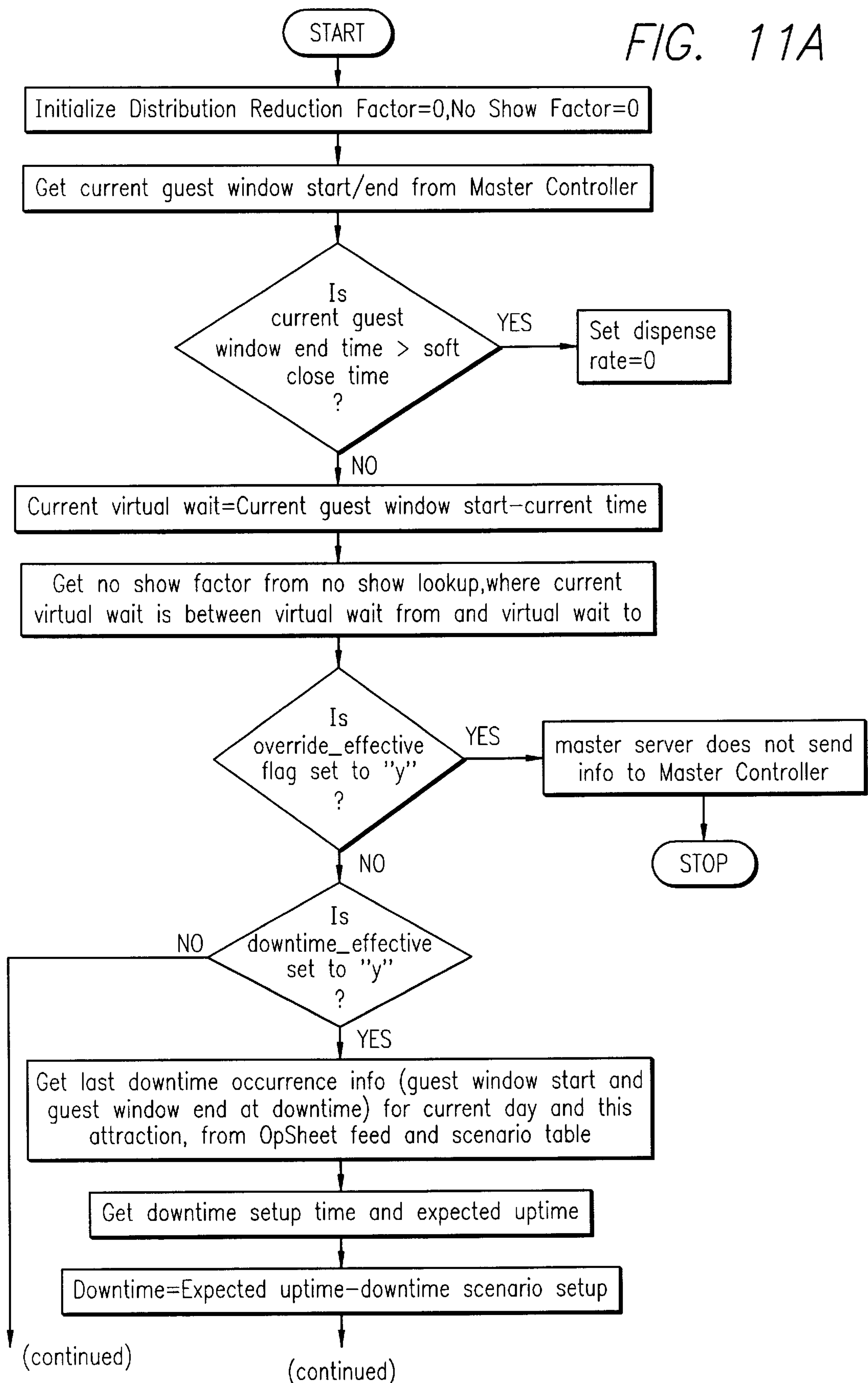


FIG. 11B

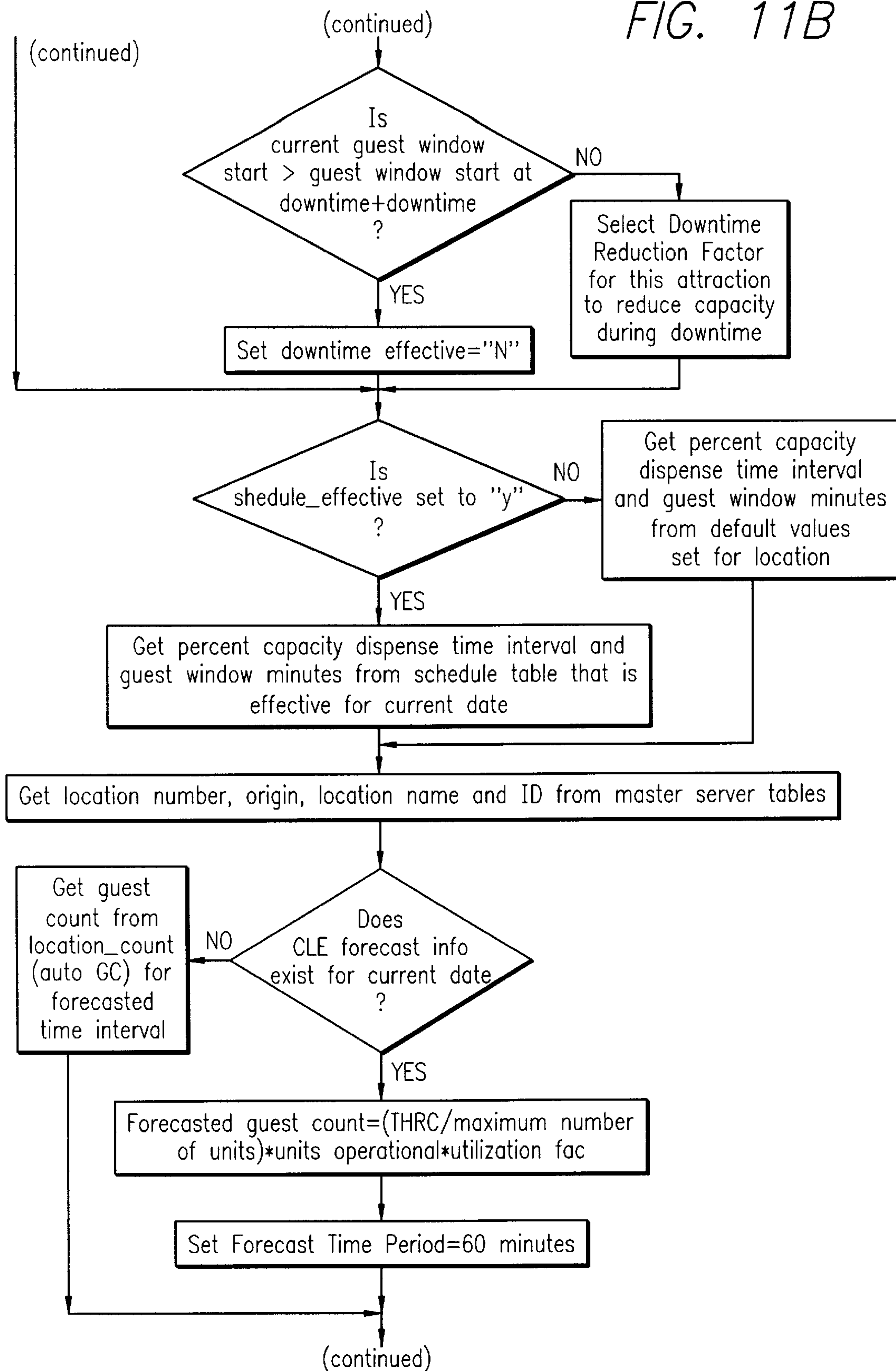


FIG. 11C

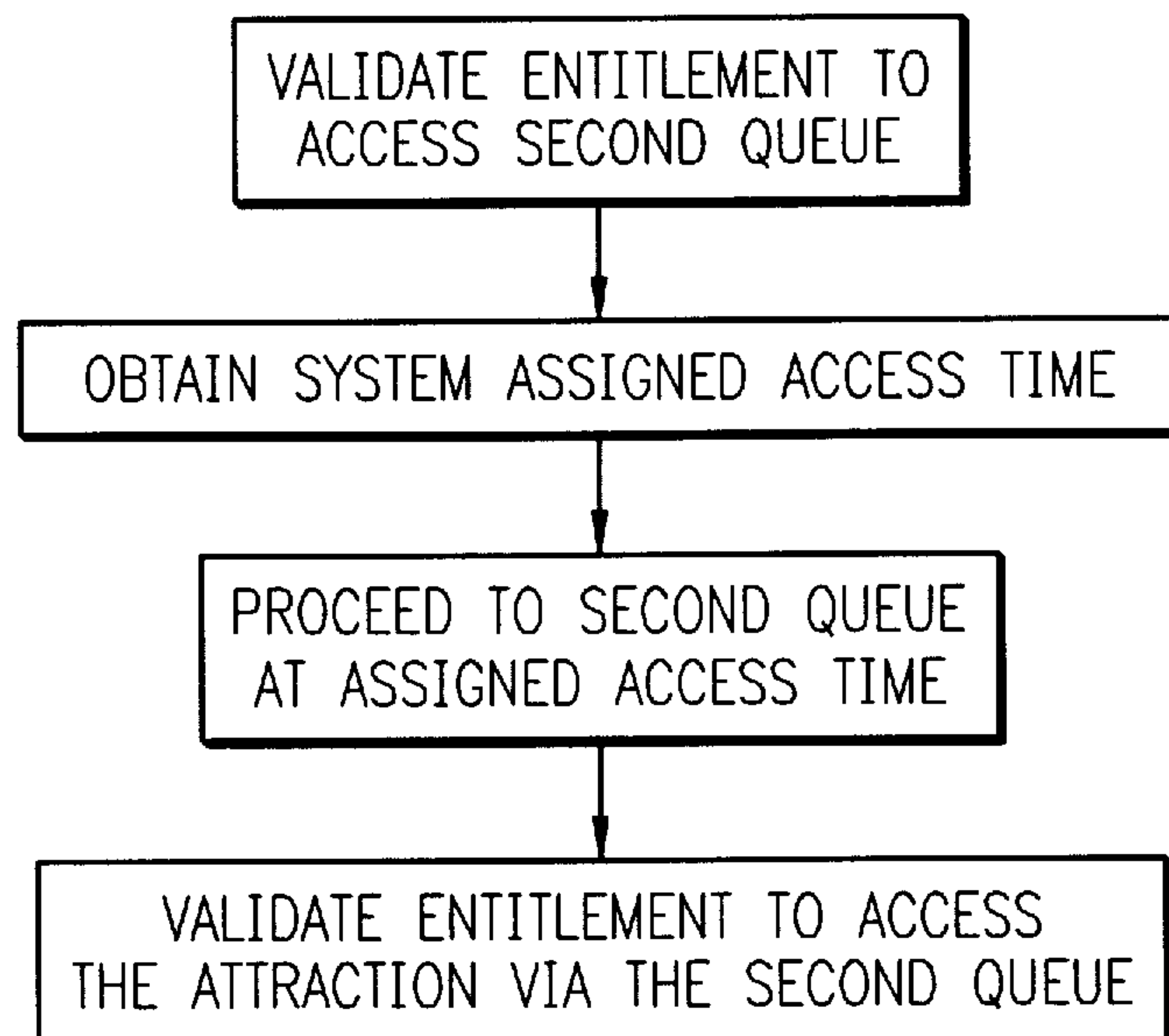
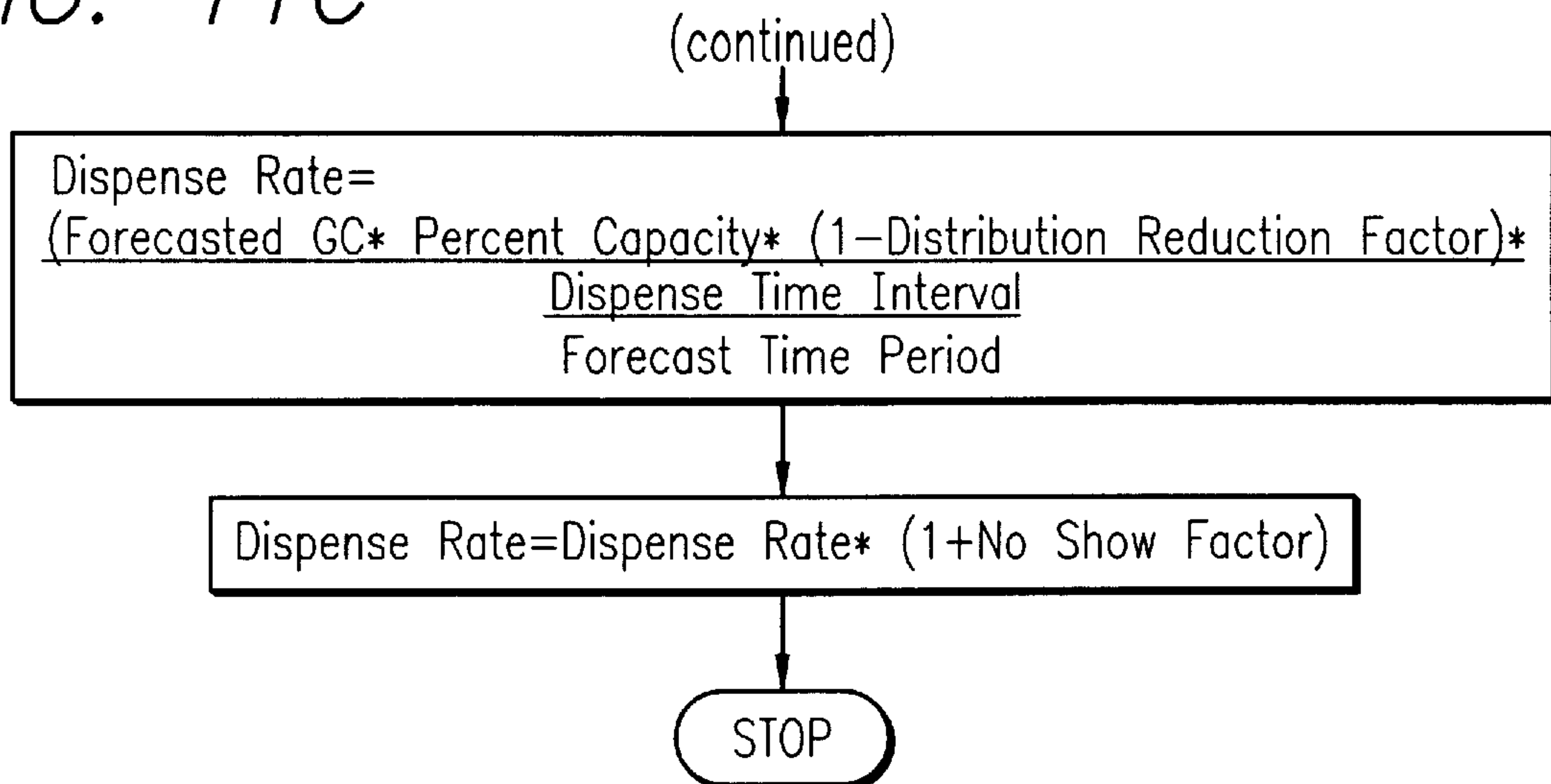
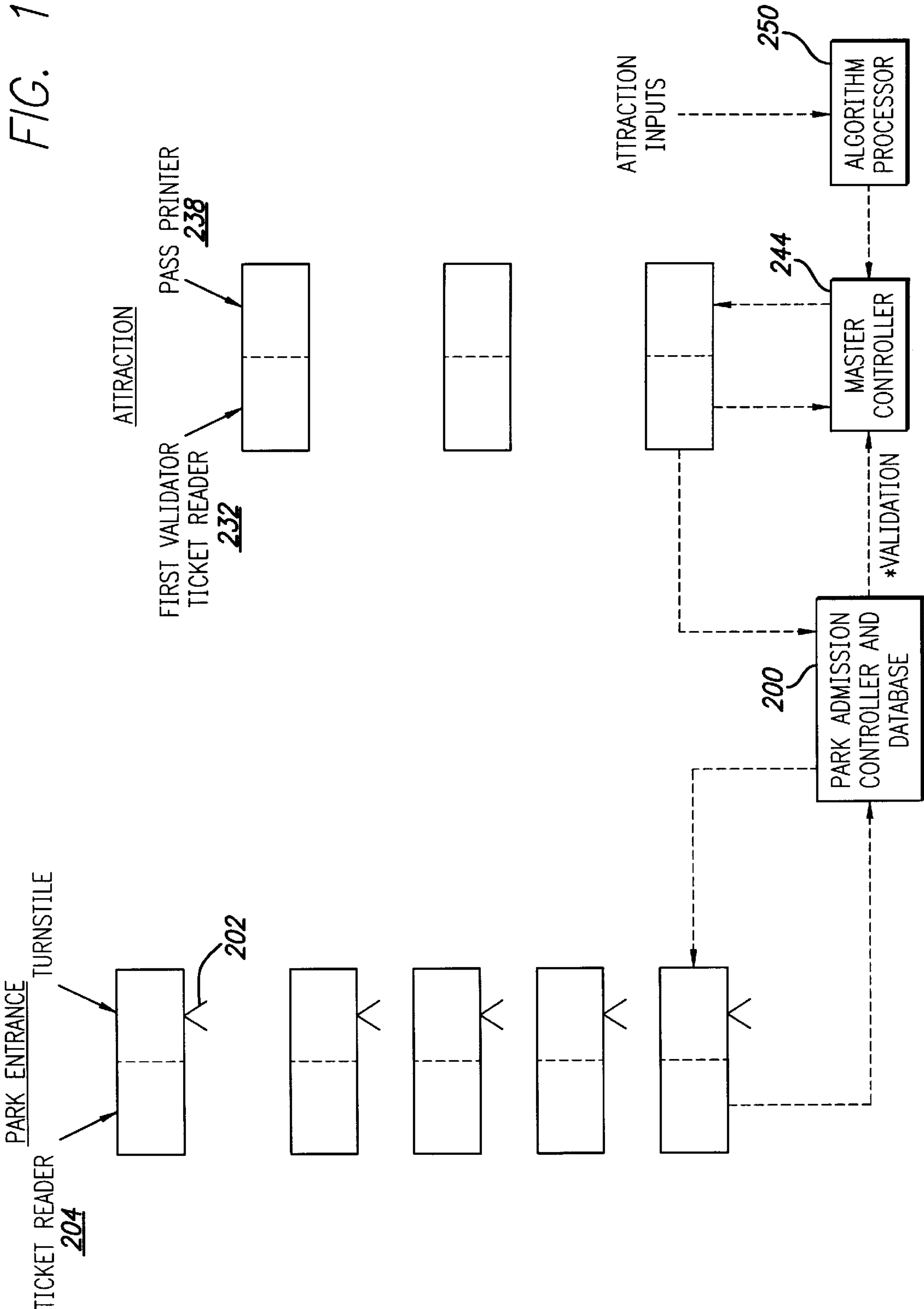


FIG. 13

FIG. 12



METHOD AND SYSTEM FOR MANAGING ATTRACTION ADMISSION

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to methods and apparatus for managing admission or entry to an attraction, such as a theme-park ride.

2. Background Art

There are a number of circumstances where people have to wait in line in order to do something. At amusement parks, for example, a customer often needs to wait in line to ride an attraction, and the most popular attractions usually have the longest lines. Other situations where people have to wait in line are at banks, a bakery, at government offices, to buy tickets for shows or concerts, to gain admission to museums, or at any other place where the number of people arriving to take advantage of goods or services at any one time exceeds the speed at which any one customer or group of customers can be served. When such a situation occurs, a line forms.

Although customers wait in line, none prefer it. People feel that time spent in line is time wasted. A customer would much rather come back later when there is no line so that the customer can do other things instead of waiting in line. This problem is particularly acute in an amusement park. An amusement park may have hundreds of attractions, including rides, shops, shows, stores, games, parades, displays, and food services. If a customer must wait in line for each attraction, the customer may only be able to utilize a small number of attractions in a visit. For particularly popular attractions, the lines can require waiting for a number of hours, so that a customer might only be able to utilize five or six attractions in a ten hour visit.

Not only is the customer frustrated at not being able to access more attractions, but the amusement park itself suffers from having underutilized attractions because the customers are waiting in line for other attractions. Instead of waiting in line for a single attraction, a customer could be riding other attractions, eating food, shopping at stores, playing games, or other activities. It would be preferable if the customer could avoid the line associated with an attraction while still being able to utilize the attraction sometime during the customer's visit.

There are a number of techniques in the prior art to handle the problems associated with waiting in line. One approach to dealing with people in lines is to attempt to make the waiting more enjoyable or to make the time go faster. In some arrangements, customers waiting in line are entertained, such as with television, music, reading material, and so forth, so as to distract them and take their mind off of waiting in line. However, such schemes do nothing to prevent the need to wait in line.

Other prior art schemes have been used to attempt to eliminate the need to stand in line. One such arrangement is where each customer arriving at a location of service is provided with a number that increments for each newly arriving customer. Numbers are called in order, with the holder of a called number being entitled to service. Such schemes are often used at bakeries and other food establishments. This arrangement avoids the need for customers to stand in a physical line in order to determine the order in which they will be served. When the customer observes that the current number being serviced is so much lower than the customers assigned number, the customer might leave the establishment and return when the customer expects the customer's number to be called.

This scheme requires a lot of guesswork by the customer, and provides no clear guidance for the customer as to when the customer should return. More often than not, the expected time delay between the current number being serviced and the customer's number is such that the customer feels compelled to wait at the establishment to avoid missing the customer's opportunity to be served. So although a physical line might be avoided in such a scheme, the waiting itself is not really avoided.

Some prior art schemes at amusement parks and other attractions have attempted to avoid the need to have customers wait in line. In a first known arrangement, a number of tickets are sold or distributed based on an operating time of an attraction and the capacity of the attraction. A problem with this scheme is that it is a "dumb" system. The assumption is that the attraction will have predictable loading and operating times, and will operate at the capacity of the tickets distributed. A problem with this system is that it does not take into account actual real time performance of the attraction, nor the dynamic real time capacity of the attraction.

Another problem with this first system or scheme is that a customer can line up for multiple tickets for the same scheduled attraction operation. If the customer keeps the multiple tickets, the attraction does not operate at peak capacity, leading to a situation where the efficiency of the attraction (number of riders per attraction cycle) is lower than if a simple wait in line scheme is used. In addition, the system does not take down time or slow downs into account, so that tickets for later operation are distributed when the attraction may not actually be operating, or when it may be still servicing customers from earlier operation times. This leads to waiting in line or to an inability to use the tickets at all.

Another problem with the scheme is that it requires all customers to use the system. There is no alternative scheme available that a customer could use in place of the scheme, even when the scheme leads to more delays. If the customer does not obtain a ticket, then the customer is not permitted to access an attraction.

Another attempt to eliminate or reduce the need to stand in line is described in U.S. Pat. No. 5,502,806 to Mahoney (the Mahoney patent or the '806 patent). The Mahoney patent describes a waiting line management system where a customer is issued a card or electronic ID device and by which the customer is permitted to use a plurality of computer access terminals. The access terminals are located, for example, in an amusement park. A customer using the card at the access terminal is advised of time slot windows available for a number of attractions and performances. The customer chooses one or more time slots for one or more attractions and thereby is able to pre-schedule the use of attractions.

A problem with the Mahoney scheme is that it allows customers to reserve the right to use a number of attractions, potentially preventing others from using the attractions. Another problem is that by allowing the customer to select a time slot, the Mahoney system lacks responsiveness to changing ride conditions and performance data. In addition, the slots themselves are determined by a pre-established allotment. Such advance assignment of time slots suffers from the same disadvantages as the above-described first known scheme in that there is no dynamic changing of time slot allocation based on actual attraction conditions. This condition could result in customers being required to stand in line if conditions have slowed down, eliminating the very

benefit the system is intended to provide. Mahoney suggests that if such a situation occurs, then customers who do not have passes will be required to wait longer than customers that do have passes. However, such a solution still could require substantial wait time for customers with passes, and leads to unacceptable wait times for customers without passes. Another problem with permitting customers to select time slots is that all of the time slots may be selected for certain periods of the day, such as 2–5 p.m., while few or none of the slots may be selected for other periods of the day, such as 12–1 p.m. In this arrangement, the attraction may be underutilized during certain periods of time.

The Mahoney scheme manages slot times allocation based on a fixed capacity of an individual attraction. In actual practice, the capacity of an attraction may not be achievable due to a variety of factors, including number of customers, the demographics of the customers, attraction performance, the number of customer vehicles associated with the ride which are in service over time, the number of staff members available to operate the ride, safety factors, weather, etc. For example, the total number of customers in a park who may even desire to access any attraction may be much less at one time of day (such as at opening) than another time of day (such as mid-day). In addition, the capacity of an attraction may change due to a variety of circumstances. A ride may be taken out of service for a period of time or one or more “cars” or associated customer vehicles may be removed from the ride, lessening the capacity. The number of staff available to operate the ride may fluctuate during the day. If a fewer number of staff members are available, such as at a shift change, the number of patrons which may be loaded into each customer car or the number of cars which may be loaded may be reduced. When slow downs occur and customers with passes must wait in line, the time slots reserved by those customers for other attractions may expire. This not only frustrates the customers with passes, but leads to potentially empty seats on other attractions.

An improved method and apparatus for managing access to an attraction is desired.

SUMMARY OF THE INVENTION

The invention is a system and method for managing admission to an attraction that provides a customer with a choice of standing in line for the attraction or having a spot reserved for admission to the attraction at a later time without standing in line. The invention also provides an improved method and apparatus for managing admission to an attraction that can be constantly adjusted to account for the dynamic real time capacity of the attraction. The invention also provides a method and apparatus for managing admission to an attraction that can prevent customers from acquiring multiple reservations for the same attraction.

In one or more embodiments, the system provides two access points or queues at an attraction. A first queue is a traditional “wait in line” queue where customers line up for the next available chance to use the attraction. A second queue provides a customer with access to the attraction which avoids the traditional, first queue.

The system includes a first validator for validating the right of a customer to receive an assigned future time to access the second queue. In one embodiment, the system also includes a media distributor for distributing an entitlement in the form of a pass to an entitled customer. The pass provides a time or time range assigned by the system during which the entitled customer is entitled to access the attrac-

tion in the future via the second queue. The system includes a second validator for validating that the customer is entitled to access to the attraction via the second queue at the assigned time. In one embodiment, the pass issued to the customer establishes the entitlement of the customer to access the attraction via the second queue by the second validator.

In accordance with an embodiment of a method of the invention, a customer may access an attraction in a manner which avoids standing in a first waiting line by verifying entitlement to utilize a second queue, being assigned a future time for accessing the attraction via the second queue, returning to the attraction at the future time and validating the entitlement of the customer to gain access at the assigned time. In one embodiment, a customer is issued a pass entitling the customer to access the attraction at a future time via the second queue and the customer uses the pass to establish entitlement to access the attraction at the future time. In this method, the customer may leave the vicinity of the attraction between when the pass is issued and the future time at which the customer is entitled to access to the attraction.

In accordance with an embodiment of the method and system of the invention, a variety of factors are utilized to determine the future time assigned to the customer and associated with the pass provided the customer. In one embodiment, the system and method are arranged to continuously adjust the number of passes and/or assigned times in order to compensate for changes in ride capacity, demand and other factors in order to maintain the attraction at optimum operating conditions.

In one embodiment of the invention, a system is associated with more than one attraction, such as rides in an amusement park. The systems are linked in a manner which permits verification that a customer accessing the second queue of one attraction has not already been issued a pass entitling them to access the second queue of another attraction.

Further objects, features, and advantages of the present invention over the prior art will become apparent from the detailed description of the drawings which follows, when considered with the attached figures.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic overview of an attraction admission management system in accordance with an embodiment of the invention for managing admission to a single attraction;

FIG. 2 illustrates in more detail a system such as that illustrated in FIG. 1;

FIG. 3 illustrates a system of the present invention which includes multiple systems for managing admission to multiple attractions;

FIG. 4 is a flow diagram of an access time calculation method in accordance with an embodiment of the invention;

FIGS. 5A–5I illustrate table names/definitions and a data dictionary of terms for use in a system and method of the invention;

FIG. 6 illustrates an embodiment of a viewable screen which provides a user of a system of the invention with attraction “downtime” information;

FIGS. 7A–7C illustrate embodiments of viewable screens which permit a user of an embodiment of a system of the invention to view current system settings and adjust those settings;

FIG. 8 illustrates an embodiment of a viewable screen which enables a user to establish a variety of settings for a specific attraction;

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FIG. 9 illustrates an embodiment of a viewable screen displaying information associated with a master server of a system of an embodiment of the invention;

FIG. 10 is a flow diagram illustrating an embodiment of a method by which information is fed from a master server to a controller of an embodiment of the invention;

FIGS. 11A–11C show a flow diagram illustrating a method of the invention by which information is fed from a controller to a master server of an embodiment of the invention;

FIG. 12 illustrates a system in accordance with another embodiment of the invention; and

FIG. 13 is a flow diagram illustrating an embodiment of a method of the invention.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, numerous specific details are set forth in order to provide a more thorough description of the present invention. It will be apparent, however, to one skilled in the art, that the present invention may be practiced without these specific details. In some instances, well-known features may have not been described in detail so as not to obscure the invention.

One or more embodiments of the invention comprise at least one method and system for managing admission to an attraction. The system is particularly applicable for use in an environment where the number of customers which desire access to an attraction is greater, at one or more times, than the capacity of the attraction. Such a condition may be referred to as a condition of insufficient capacity. By insufficient capacity, it is meant that fewer customers can be accommodated at/by the attraction than wish to be accommodated at a particular time or over a period of time. This condition may arise by an imposed limitation, such as where it is desired to limit the number of persons in a particular area at a given time. Such may be for safety or a variety of other purposes. This condition may also arise due to physical limitations, such as the number of seats on a particular ride and the cycle time of the ride.

FIG. 1 is an illustration of one embodiment of the present invention. The system is for use in controlling admission or entry to an attraction 22 (note, as used herein, the term “attraction” is meant to comprise any location or presentation to which one or more customers wish to gain access. The attraction may comprise a location at which a service is provided, such as a ride, stage or other show, theater, parade, restaurant or other food service, merchandise location, transportation or the like. The attraction may also comprise a geographic location, such as a natural wonder, art museum or the like. Thus, while the system has particular applicability to and is described herein for use in controlling access to a ride-type attraction, the system may be used in a wide variety of other environments where it is desired to avoid lines).

In one or more embodiments, the system includes a first queue 24 by which customers gain access to the attraction 22 by waiting in a line, much as has been done in the prior art. In other words, the customers in the first queue 24 have an order in line based on a time at which they enter the queue, and are able to utilize the attraction in that order when a space or capability is available. In one or more embodiments, the queue 24 includes a turnstile 28 (or similar device for controlling access) positioned at an entrance of the attraction 22. The queue 24 may also include ropes, fences 30 or the like for defining a space in which the customers line up.

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In one or more embodiments, the customers in the first queue 24 are permitted to access the attraction when there is an open spot not filled by the customers accessing the attraction via the second queue 26. As described in more detail below, the number of customers which are permitted to access the attraction via the second queue 26 may be adjusted to provide a certain number of open spots for customers in the first queue 24. For example, 80% of the available spots for the attraction may be dedicated to and filled by customers from the second queue 26, while the remaining 20% are filled by customers from the first queue 24. In addition, if one or more of the spots dedicated to the customers of the second queue 26 are not filled, such as if one or more customers who obtain passes for accessing the second queue 26 do not return to access the attraction, then these spots may be filled by customers in the first queue 24. As described in more detail below, this arrangement permits the attraction to operate at all times at optimum capacity.

The system of the invention also includes a second queue 26 by which customers gain access to the attraction 22 without waiting in a line and thereby avoid the first queue 24. In one or more embodiments of the system, the system includes at least one validator for validating the right of a customer to receive an assigned time to access the attraction via the second queue.

In the embodiment illustrated in FIG. 1, the system includes a first validator 32 validating the right of a customer to receive an assigned future time to utilize the second queue 26, and a second validator 34 for permitting the customer to access the attraction 22 at a future time via the second queue 26. In this manner, the customer can avoid the first queue 24.

In operation, a customer utilizes the first validator 32 to obtain an assigned time in the future for accessing the attraction via the second queue 26. As described below, in one embodiment, an entitled or “validated” customer may be issued a pass which includes a time or time range at which the customer is entitled to return and utilize the attraction. The amount of time between the time a pass is issued and the time at which the customer can utilize the attraction depends on a number of factors, including the number of people who have already obtained passes, the capacity of the attraction, the operating speed of the attraction, staffing availability, the capacity of the attraction allocated to the customers accessing it via the second queue, and any delays related to operation of the attraction.

When the assigned time or time range (such as that indicated on the pass) occurs, the customer is entitled to access the attraction without waiting in line. The customer accesses the second queue 26 and establishes entitlement to access the attraction via the second queue 26. In one embodiment, the customer presents the issued pass at second validator 34 and if the pass is valid (i.e., the time or time range is appropriate, the pass is not counterfeit, etc.) the customer is admitted to the attraction.

In one embodiment of the invention, a customer may only use the second queue when the customer has not previously been issued a yet unused or unexpired pass. This scheme is to prevent customers from obtaining multiple passes for a single attraction, preventing others from enjoying it, or to prevent customers from reserving admittance to multiple attractions. A customer may be permitted to obtain multiple passes to one or more attractions, as described in greater detail below.

As illustrated in FIG. 1, at or near an entrance to attraction 22, a customer is presented with a point of decision 36 where the customer decides whether to access the attraction 22 via

the first queue **24** or the second queue **26**. When there is no appreciable line in the first queue **24**, the customer may decide to forego the second queue and utilize the attraction in a prior art manner. If the line in queue **24** is too long, or if the customer wishes to utilize the system of the invention, the customer chooses the second queue **26**.

In one or more embodiments, the system includes a first queue wait time generator **31** and associated display **33**. The first queue wait time generator **31** is configured to generate a time regarding the wait associated with accessing the attraction via the first queue **24** by a customer about to enter the first queue **24**. Of course, the wait time may be calculated manually, such as by tracking the wait time of one or more particular customers through the first queue **24** from time of entry until time of attraction access. In one or more embodiments, the first queue wait time generator **31** includes sensors which provide data for use by the generator **31** in determining a current length of the wait associated with that line. The sensors may provide information such as the physical length of the line. The generator **31** may use this information and information such as the current ride capacity, percentage of capacity allocated to customers accessing via the second queue **26**, and other factors for generating an approximate first queue wait time. Various data for use by the generator **31** may be input manually as well. For example, a ride operator may visually estimate the physical length of a line and input line length data to the generator **31**. The first queue wait time display **33** is configured to provide a customer at the point of decision **36** with the first queue wait time information. The display **33** may comprise a digital or other display for displaying hours and/or minutes of wait time.

In one or more embodiments, the system includes a second queue time display **35**. This display **35** is configured to display the next time which will be assigned to a customer for accessing the attraction through the second queue **26**. The display **35** may comprise a digital or other display displaying hours and/or minutes of wait time.

Using the information regarding the access times available to a customer via the displays **33,35**, a customer is aided in the process of deciding to access the attraction through the first or second queues **24,26**.

In one or more embodiments, the first validator **32** for verifying entitlement of a customer to an assigned future time may be located remote from the attraction or there may be more than one first validator **32**, one located near the attraction and one or more located remote therefrom. For example, a first validator **32** may be located near an entrance to a theme park. In such an event, a display **33** for displaying first queue waiting time and a display **35** for displaying the next available time for accessing the attraction via the second queue **26** may be located at the remote first validator **32** as well.

FIG. 2 illustrates one embodiment of a system having a first validator **32**, a media distributor **38**, and a second queue **26** having an associated second validator **34**. The first validator **32** is arranged to determine or verify that a customer is entitled to an assigned future time for accessing the attraction via the second queue **26**. In one embodiment, the first validator **32** establishes the right of a customer to a pass having an assigned future time, the pass for use by the customer in gaining access to the attraction **22** via the second queue **26** at the future time. The first validator **32** may comprise a card-reader type device which is arranged to read a magnetic stripe on a ticket issued to the customer. In such an arrangement, each customer may be provided with a

ticket or similar element which establishes a customer's right to access the attraction **22**.

In an embodiment where the attraction **22** is inside of or part of a theme park, the ticket which the customer uses for validation may be a ticket which is issued to the customer by which the customer gains access to the park itself. In such an arrangement, the first validator **32** may be arranged to communicate with a main database containing information regarding the customer(s) (such as by ticket numbers) which are entitled to utilize the second queue **26**.

In one or more other embodiments, the first validator **32** may be arranged to read information on a card, to accept issued tokens, identify one or more biometric identifiers of a customer such as a radio-frequency identification (RFID); retina, voice, thermal, finger or hand geometry signature; or a visual identification of the customer or the like.

In one or more embodiments, if the first validator **32** establishes the right of the customer to an assigned time in the future for accessing the attraction via the second queue **26**, then the media distributor **38** distributes a pass to a customer which the customer may utilize to access the attraction via the second queue **26**. In one embodiment, the media distributor **38** comprises a printer which prints a paper pass or similar element. The media distributor **38** may issue one or more of a wide variety of media as passes, such as magnetic-stripe encoded or "smart" cards, punch-type cards, coded tokens, biometric identifiers such as those set forth above and the like.

In one embodiment, the pass which is distributed to each customer by the media distributor **38** is arranged to permit the customer to gain access to the attraction **22** at a time in the future. The particular time, as described below, may vary upon a wide variety of circumstances. In one or more embodiments, the time comprises an assigned access time or time range which is printed on the pass which is issued to an entitled customer. (In the examples below, the pass is referred to as having a "time" associated with it. It will be understood that this contemplates both a specific time and/or a time range, time period, or time window).

As described above, the first validator **32** and the media distributor **38** may be located adjacent to the attraction and/or remote therefrom. In the event the first validator **32** and media distributor **38** are located near the attraction, after obtaining a pass or the like, the customer may leave the area of the attraction **22** and need not return to the attraction **22** until the time provided on the pass. In the event the customer obtains a pass from a remote media distributor **38**, the customer simply continues about their activities until it is necessary to travel to the vicinity of the attraction at the assigned time. As described in more detail below, the right of a customer to obtain passes may be a value added feature for which the customer pays additional monies (such as at the same time as purchasing a main ticket).

In one or more embodiments, the first validator **32** may be integral with a main ticket issuer/validator and second queue access passes may be issued at the same time or as part of a main ticket. For example, a customer entering a theme park may be permitted, at the time they present or purchase their ticket, to obtain one or more passes providing future times assigned by the system. This permits a customer to plan or schedule their day ahead of time. In this arrangement, the ticket which the customer uses to access the theme park may be encoded and/or printed with access time information for permitting the customer to access one or more attractions at future times, avoiding the need to issue separate passes.

In one or more embodiments, the system and method for permitting access to the attraction **22** includes a second

validator **42** for establishing the right of a customer to access the attraction via the second queue **26** at assigned time. In one embodiment, the second validator **42** validates the media or pass issued by the media distributor **38** and held by a customer. In one or more embodiments, the second validator **42** comprises a human attendant which reads information printed on the pass and verifies the information. The attendant may verify the printed assigned time or time range against the current time, a date of the pass against a current date, and the attraction for which the pass is issued.

Alternatively, the second validator **42** may comprise a card reader or other device for confirming the entitlement of a customer to access the attraction **22** via the second queue **26**. For example, the second validator **42** may be arranged to verify data associated with the element issued by the media distributor **38**, such as a bar code.

In one or more embodiments of the invention, the pass issued to a customer may be issued only for reference by the customer for knowing and remembering the assigned time or range of time, and the second validator **34** may be configured to verify entitlement of the customer in a manner independent of the pass. For example, a customer may establish entitlement to a pass with a finger print at the first validator **32**. The pass provides written indication of the assigned time to the customer. When the customer accesses the second queue **26**, the customer may be required to establish validation at the second validator **34** with a fingerprint again. In this arrangement, the second validator **34** determines that the customer is entitled to access the attraction by establishing that the identify of the customer with the fingerprint and determining if the time the customer is accessing the second queue **26** is at the time/in the range of time which was assigned to the customer. It may be appreciated that the second validator **34** may be configured to establish validation in one or more of the variety of manners described above with respect to the first validator **32**. It should be appreciated that customers may not be issued passes at all.

In accordance with one or more embodiments of the invention, one or more schemes are provided for determining the access time which is associated with each media which is issued by the media distributor **38**. In one or more embodiments of the invention, a time at which a customer is permitted to gain access to the attraction **22** via the second queue **26** is dependent upon one or more of a variety of factors, including, but not limited to, the following: the capacity of the attraction, the capacity of the attraction which is allocated to customers accessing through the second queue **26**, the total number of customers who may wish to access the attraction **22**, the current and future staffing of the attraction, the demographics of the customers, the time of day and the day of the week.

In one or more embodiments, the system includes a controller **44**. As illustrated, the controller **44** is arranged to control the media distributor **38**. The controller **44** may also be arranged to control other aspects of the system, such as the first validator **40**. In one or more embodiments, the controller **44** receives attraction capacity and/or time information and instructs the media distributor **38** what time to issue in association with each pass. The controller **44** may send a signal to the second queue time display **35** for displaying the next time to be assigned.

A keypad **46** or other data entry/control device (such as a keyboard, mouse, joystick or the like) may be provided for manually entering data and controlling the controller **44**. The keypad **46** may be used to enter specific time information,

reset the controller and the like. A display screen **47** such as a CRT may be associated with the controller **44** and keypad **46** for permitting a user to view information regarding the system.

A local server **48** is arranged to send and receive data. In one or more embodiments, the local server **48** is arranged to receive data about the capacity and other characteristics of the attraction **22**. For example, various sensors may be associated with the attraction **22** for providing data. In one or more embodiments, the sensors (not shown) may monitor ride speed, the number of customers passing through or standing in the first queue **24**, the capacity of the ride, etc. The local server **48** may receive data from these sensors at various times or continuously, or may transmit specific requests for data. (In other embodiments, the local server **48** may be a remote server in communication with the attraction and sensors).

Information may be inputted manually or automatically. For example, each staff member which is currently available to operate a ride may manually enter their employee code to indicate to the system that they are available to operate the system. Based on the number of employees which are indicated as available, adjustments may be made to the number of customers which are likely to be serviced during a period of time.

As will be appreciated by those of skill in the art, many current attractions, such as thrill rides, already include sophisticated ride control systems. These systems have a variety of sensors and controls for monitoring and controlling the ride. The local server **48** may simply comprise an interface with the individual ride control systems for receiving information therefrom.

The information which is provided to the server **48** is transmitted to an algorithm processor **50**. The algorithm processor **50** utilizes the data to determine times for issuance by the media distributor **38**. In general, it is desired that the algorithm processor **50** issue a time associated with each media which permits the customer to return to the attraction **22** at the predetermined time at the second media validator **42** and access the attraction **22** (such as via second validator **42**) without standing in a line. In order to accurately balance demand and capacity, the algorithm processor **50** obtains information regarding a variety of factors which affect demand and capacity. (Although shown as separate entities in FIG. 2, the controller **44** and algorithm processor **50** may be implemented as a single device or process).

In one or more embodiments, if the wait associated with the first queue **24** becomes longer than a desirable time, then the algorithm processor **50** may be arranged to issue fewer numbers of access times or access times which are later in time so as to permit a greater number of customers from the first queue **24** to access the attraction **22** for a period of time. In the event the capacity of the attraction **22** suddenly decreases, the algorithm processor **50** may be arranged to respond in a similar fashion. In the event the capacity of the attraction **22** increases, then the algorithm processor **50** may be arranged to issue a greater number of access times.

In one or more embodiments, the algorithm processor **50** utilizes one or more algorithms to produce access time data. Set forth in FIG. 4 is a flow diagram illustrating a configuration of a method by which the assigned or "wait" times are calculated (as used in FIG. 4, "GC" represents the guest count). FIGS. 5A-5H illustrate tables and a data dictionary for data element which may be used in the illustrated wait time calculation.

Set forth below is information regarding a number of processes employed in the flow diagram illustrated in FIG.

4. As set forth therein, the system may be arranged to employ a number of procedures at different times. For example, every 5 minutes, the system is arranged so that data associated with the controller 44 is uploaded to a master server (as described below in conjunction with FIG. 3). The system may be arranged so that all data regarding customers which have been issued entitlements is cleared from the system at 3 a.m. each day.

DISPENSE RATE CALCULATION

g=number of guests carried
x=guest count survey time in minutes
z=percentage of capacity for attraction sent to the system
p=ticket increment period in minutes
 $((g*z)/x) * p$ =dispense rate setting

Example:

If g=2,000, x=60, z=0.8, p=5, then
 $((2000 * 0.8)/ 60 * 5=133.33$
Rounded down to 133.

PROCESSES

The system has following processes:

5-MINUTE LOAD PROCESS

Every 5 minutes, a main systems process on a Bridge server will get the Master Controller data (as used herein and in the Figures, "master controller" includes controller 44 as described above and a master controller 244 as described below), call the stored procedure "put_me_data" on the Park server (the Park server may comprise a server such as server 104 described below with reference to FIG. 3), and pass a series of values to the stored procedure. The stored procedure will insert these values into the synonymed "vq_contr_feed_info" table, which points back up to an attraction data server (such as the master server 102 as illustrated in FIG. 4 and referred to in FIGS. 5A-5H as "OPSheet" or local server 48), and update the local Park server table "vq_last_feed_info".

10-MINUTE SEND PROCESS

Every 5-10 minutes, after calculations have been performed to determine the correct dispense rate, a row will be inserted into the vq_opsheet_feed table location on the attraction data server. This insert will trigger a stored procedure, which will activate a C routine. The C routine will build two files. The first file will contain the attraction identifier; the second file will contain k-shell script commands. The C routine will execute the k-shell file, and the k-shell file will ftp the first file to the Bridge server location. On the Bridge server, another mechanism will run every minute looking for the file sent by the process described above. If the file is found, a message pulse will be sent via the Windows NT operating system to activate the main systems process.

The main systems process will read the file to get the attraction ID. Using this attraction ID, the main systems process will call the stored procedure "get_me_data", located on the attraction data server. This stored procedure will return the values from the "vq_opsheet_feed_info" table for the attraction in question, and then indicate that this data has been processed.

ABUSE CHECK

When a card is read through the magnetic reader, a main systems process will trap the information, attach the attraction, and call a stored procedure called "abuse_check", which is located on the Park server. This stored procedure will determine whether or not a duplicate ticket exists for abuse purposes. It will also determine whether or not the close time has been reached. Based on several checks, either a 0 (successful), 1 (abuse), or 2 (past the close

time) will be returned by the stored procedure to the main systems process. The main systems process will then determine how to proceed with printing a reservation ticket.

CLEARING ABUSE CHECK DATA

Each morning at 3:00 AM, a process called "cleanab.sh" will run. This is a C program that will delete all the abuse check data accumulated for the day.

SYNCHRONIZATION OF ATTRACTION DATA SERVER TO THE PARK SERVERS

Each time an attraction is created, updated, or deleted in the attraction data server, a trigger mechanism will be activated. The trigger mechanism will take the changes on the attraction data server and pass them to the correct Park server attraction table. This will be done via a stored procedure called "synclocs". This stored procedure will determine which park needs to be updated and, via a synonym, perform the updates.

NETWORK MONITORING MECHANISM

This process will be comprised of a C routine residing on the attraction data server. This C routine will be activated every minute, and will build a connection against the attraction data server database and each of the active Park server databases. It will also attempt ping against each of the active Bridge servers. If any component fails, a page will be sent to the development team.

VISUAL BASIC TURNSTILE FEED TO ATTRACTION DATA SERVER

A Visual Basic process will run on a dedicated Windows NT server to keep the data flowing into the attraction data server.

DOWN TIME PROCESS

The Down Time Process is used when a location must be closed to guests for a certain amount of time.

A user at the location initiates this process through the attraction data server's line management module, which displays on the location's PC. In the Location Down Time screen, the user selects the appropriate park and location. The process checks to see if the selected location is in Override mode.

If the location is in Override mode, the process prevents the user from continuing. (A down time cannot be assigned to a location in Overridemode.)

If the location is not in Override mode, a location port ID is retrieved. This location port ID is used throughout the process to assign values to tables pertaining to the location's down time status.

After the park and location are selected, the process provides a suggested "expected up time." The suggested expected up time is the current time + the default minimum down time. (Each location has a default minimum down time.) The user can modify the expected up time so it is greater than the suggested expected up time, but cannot modify it to be less than the suggested time.

The process obtains the expected up time from the user and the current time from the UNIX server.

Next, the process obtains the down time minutes by subtracting the current time from the expected up time.

The process obtains the guest window start and end time from either the controller feed table or the attraction data server feed table. (Obtaining the most up-to-date time is critical. If the guest window start value in the OPSheet feed table is greater than the guest window start value in the controller feed table, the values from the attraction data server feed table are used. Otherwise, the values from the controller feed table are used.)

The process checks to see if the location has previously been in down time mode. If the location has previously been in down time mode, the process does one of the following:

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If the current time is less than the location scenario table's expected up time (that is, the user is modifying an existing expected up time), the process updates the location scenario table.

If the current time is greater than the location scenario table's expected up time (that is, the user is entering a new expected up time), the process inserts a row into the location scenario table and updates the table. The process obtains the location scenario id number to insert into the attraction data server feed table.

If the location is not in down time mode, the process checks to see if the location is in schedule mode. If the location is in schedule mode, the schedule's performance values are assigned to the appropriate tables via the location port ID.

If the location is not in either schedule or downtime mode, the process uses the values in the location's loc_port_info_data table.

When the location's values have been assigned to the appropriate tables, the process runs a stored procedure that calculates the new dispense rate using values obtained from the location port id.

Finally, when the location scenario id is obtained, a row is inserted into the attraction data server feed table with values provided by the user, the stored procedure and the supporting tables.

The algorithm processor 50 and controller 44 work with one another to control the issuance of passes by the media distributor 38. In general, the access times that are provided by the algorithm processor 50 are forwarded to the controller 44. The access times are then provided sequentially to the media distributor 38 for printing on each successive pass. In the event the algorithm processor 50 indicates that no more access times are available, the controller 44 may instruct the media distributor 38 and/or first validator 40 to print or display a message that no more customers are being provided access to the attraction 22 via the second queue 26.

The algorithm processor 50 may be arranged to provide for multiples of the same access time. For example, if the capacity of the attraction 22 permits, two or more passes may be issued with the same access time. On the other hand, if the capacity of the attraction 22 is limited, the access times may be spaced apart in time.

As described above, certain information regarding the system may be provided for viewing on the display screen 47. The display screen 47 and associated keypad 46 may comprise a user interface for the system for obtaining information from and inputting information to, the system. FIG. 6 illustrates an information screen illustrating the current "downtime" of an attraction. A user of the system may input estimated downtime information to the system using the keypad 46. This information may be used by the algorithm processor 50 to adjust the times which are being calculated for assignment to customers by the input time.

FIGS. 7A-7C illustrate screens which permit a user to view current system settings and adjust those settings. For example, a user of the system may determine from such a screen that the current pass dispense rates for the second queue 26 are higher than desired, and input a lower percentage allocation value to the system for reducing the number of passes/entitlement issued to customers. The user may also set an expected level of "no shows" or the percentage of customers who obtain passes for accessing the second queue but do not use them.

FIG. 8 illustrates a screen which enables a user to establish a variety of settings for a specific attraction. For example, using this displayed information a user can deter-

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mine whether or not the system is configured to permit a customer to obtain multiple passes. If not (i.e. "abuse check" is "on"), the user may utilize the keypad 44 to change this setting, if desired. The user may also be permitted to view and adjust a wide variety of other information such as the time at which the ride will shut down and thus the last possible assigned time.

FIG. 9 illustrates a screen displaying information associated with the master server 102. As illustrated, using information provided to the master server 102, a user may obtain information regarding any one or more attractions associated with the system. The user may be permitted to obtain and revise information with any particular attraction. This arrangement allows a user to avoid the need to travel to each attraction to view information, but instead obtain and edit information from a central location.

The personnel which are permitted to access the system, including the viewing of information and inputting of information, may be limited. For example, a card-reader or similar device may be associated with the keypad 46 for reading an employee I.D. card and verifying that the employee is permitted to access the system.

Those of skill in the art will appreciate that there are numerous configurations of hardware and/or software for implementing the invention. For example, the controller 44, keypad 46 and display 47 may comprise components of a general purpose computer. The algorithm processor 50 may comprise hardware, or may comprise software executed in a processing environment, such as a computer.

Although the above-described system has been described as and is particularly applicable in managing admission to a single attraction, such a system can be adapted to manage admission to multiple attractions. In one or more embodiments, a first system which is associated with a first attraction 22 is linked to a second system associated with second attraction and/or additional attractions. FIG. 3 illustrates in greater detail such a master system 100 in accordance with one embodiment of the invention.

The master system 100 includes a master server 102 which is linked to a local server 48 of a local system associated with a particular attraction. In addition, a main server 104 is linked to each local server 48. For simplicity, FIG. 3 illustrates only one such local system in detail, and illustrates only the local servers of three additional local systems.

In the embodiment illustrated, the master server 102 serves the function of the algorithm processor 50 of the system described above. In this arrangement, the algorithm processor 50 associated with each system is omitted and the master server 102 serves the functions of each individual algorithm processor. The master server 102 sends calculated access time information for each attraction 22 to its respective local server 48, which then provides the data to the media distributor 38.

The main server 104 is arranged to permit communication to and between each of the local servers 48. For example, in one or more embodiments, when a customer seeks to obtain an admission pass for an attraction, the local server 48 associated with that attraction sends a request to the main server 104 to determine if the customer has already obtained an admission pass for another attraction. If so, the local server 48 can instruct the controller 44 (and first validator 40) to prevent the media distributor 38 from issuing an admission pass. When the customer is not prevented from obtaining an admission media, then the local server 48 may be arranged to send data to the main server 104 regarding the customer, the issued time and attraction so that the customer

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can be prevented from accessing another attraction at the same time or before the currently issued pass has been used or expired.

In one or more embodiments, the main server **104** stores or is linked to a database having information regarding customers entitled to access the second queue **26** of each local system to access an attraction. For example, the main server **104** may store ticket codes of those tickets issued to customers each day at an amusement park.

In one or more embodiments, when a customer wishes to access an attraction through the second queue and uses the first validator **40**, the first validator **40** sends a request through the local server **48** to the main server **104** requesting verification that the customer is entitled to access the system. If the customer is verified, then such a response is transmitted to the first validator **40**. If not, then such a response is transmitted to the first validator **40**. The first validator **40** may be arranged to display an appropriate message to the customer, such as "invalid entitlement."

In accordance with one or more embodiments, there may be more than one "first queue" or other line in which customers wait. Further, in one or more embodiments, there may be no first queue. In such an arrangement, each customer who wishes to access the attraction is given an admission media (if so entitled) and permitted to access the attraction at the assigned time only.

FIG. **10** is a flow diagram illustrating a protocol by which the master server **102** (referred to in the figure as the "Master Server Feed") communicates with the controller **44** of the system associated with each attraction in one implementation of an embodiment of the invention (this implementation is associated with the information provided in FIGS. **4** and **5A–5H** and described further above). FIGS. **11A–11C** show a flow diagram illustrating a protocol by which the controller **44** communicates with the master server **102**.

As illustrated in FIG. **3**, more than one media distributor **38** and first validator **40** may be provided at each attraction **22**. More than one second media validator may be provided for permitting access to the attraction **22**.

FIG. **12** schematically illustrates a system in accordance with an embodiment of the invention in which validation of park entry tickets and establishment of the entitlement of a customer to access the second queue **26** is centralized. In this embodiment, a customer obtains a ticket, whether pre-purchased or purchased at the gate. A central park admission controller and database **200** stores information regarding valid tickets. A customer is permitted to enter the park via a turnstile **202** or other monitored entry when the customer's ticket is validated. For example, the customer's ticket may be read by a ticket reader **204** and the data thereon verified by the park admission controller **200** against the stored ticket information.

When a customer wishes to obtain an assigned time to access a second queue of an attraction, the customer establishes an entitlement via a first validator **232**. The first validator **232** communicates with the central park admission controller **200** via a master controller **244**. This arrangement permits a determination that the customer's ticket is valid for a specific day, has not be revoked or the like. If the ticket is validated, then the customer may be provided a pass, such as described above, by a media distributor **238**. The master controller **244** is also arranged to send data to the central park admission controller **200** that a pass has been issued to the customer for that attraction. Then, if the customer attempts to gain a pass for that or another attraction while the first pass is outstanding, the database associated with the park admission controller **200** has a record of the outstanding pass and the customer will be denied the additional pass.

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Again, an algorithm processor **250** is arranged to communicate with the master controller **244** to provide times to be assigned and printed by the media distributor **238**.

In one or more embodiments, the system may be arranged so that not all customers are entitled to access the attraction **22** via the second queue. In another embodiment, one or more customers may be permitted to access certain attractions via the second queue and other attractions only via the first queue. In one or more embodiments, only customers which pay a premium amount or obtain some special entitlement are permitted to access one or more attractions via the second queue.

Operation, Effect And Other Features

In operation, in one or more embodiments, a customer receives a ticket or other entitlement. For example, at an amusement park, a customer pays for a ticket to gain entry to the park. With respect to the embodiment of the invention illustrated in FIG. **3**, the main server **104** stores information regarding the customer's ticket.

At some point a customer may wish to access a particular attraction **22**. When the customer reaches the attraction, they are presented with an option. First, the customer may access the attraction through the traditional first queue **24**. Optionally, the customer may access the attraction **22** via the second queue.

Referring to FIG. **13**, if the customer wishes to access the attraction **22** via the second queue **26**, the customer first validates entitlement to receive an assigned time to access the second queue **26**. In one embodiment, the customer slides a portion of his ticket through a card reader portion of the first validator **40**. In one or more other embodiments, validation may be performed by scanning a fingerprint or the like as described above.

In the arrangement illustrated in FIG. **3**, the first validator **40** then sends a confirmation request through the local server **48** to the main server **104**. The main server **104** verifies that the ticket is on the list of valid tickets. If the ticket is not verified, then the main server **104** sends this data back to the first validator **40** which may illuminate or print out an indication of such to the customer. In an embodiment where the customer is not entitled to more than one pass or entitlement to a second queue at a time, the first validator **40** is configured to verify that the customer has no other outstanding entitlements/passes.

In one embodiment, such as in the system illustrated in FIG. **2**, if the ticket is verified, the first validator **40** sends a signal of such to the media distributor **38**. The media distributor **38** then issues a pass to the customer. The pass includes an assigned access time at which the customer is entitled to return to the attraction **22** in the future and access the attraction **22** through the second queue **26**.

The customer may then leave the area of the attraction **22**. During this time, the customer may shop, eat or engage in a wide variety of other activities.

At the appointed time, the customer returns to the attraction **22** and seeks access to the attraction via the second queue **26**. The customer establishes entitlement to access the attraction via the second validator **42**. In the embodiment where the customer is provided with a pass which provides access, the customer presents the issued pass to a person who verifies the current time and the time printed on the pass, the date of the pass and the attraction for which the pass provides access. If validated, then the customer is permitted to access the attraction **22**. As provided above, the customer may establish entitlement to access the attraction in accordance with other methods, such as by scanning a fingerprint again.

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In one or more embodiments, the customers gaining access to the attraction through the first and second queues may be separated. For example, for a ride having four cars, the first two cars may be filled with customers from the first queue **24** and the second two cars filled with customers from the second queue **26**. In one or more embodiments, the customers gaining access to the attraction **22** are integrated in accordance with the allocated capacity to the first and second queue customers.

In one or more embodiments, one or more customers may be permitted to access an attraction via the second queue **26** apart from the standard method of establishing entitlement at the first validator **40** and then returning to the second queue **26** of the attraction at the assigned time. For example, one or more passes may be issued to a number of customers which include pre-assigned times. One or more customers might, for example, be issued passes on the same day or days or weeks before the assigned date of access. A customer arranging a trip to a theme park may be permitted to purchase passes. In one or more embodiments, these assigned “spots” are accounted for by the system when determining other passes to issue to those accessing the attraction with the first validator.

In one or more embodiments, one or more customers may be permitted to access an attraction via the second queue **26** or even a third queue without a pass. For example, special VIP, disabled or other customers may be permitted to access the attraction via the second queue **26** or a third queue which permits the customer to access the attraction at any time.

As described above, in one or more embodiments of the system and method a customer is prevented from obtaining more than one entitlement or pass for accessing an attraction at a single time. In another arrangement, some customers may be permitted to obtain multiple passes. In one embodiment, the system may be arranged to permit customers to obtain multiple passes at some times and not at others. For example, if the wait time for accessing one or two attractions is particularly long (whether by the first or second queue **24,26**) the system may be arranged to permit customers to obtain passes for different attractions so that the customer avoids the need to access one attraction before obtaining a pass for accessing another attraction.

Advantageously, the method and system of the present invention permits one or more customers to gain access to an attraction without having to wait in a standard line to access the attraction. This permits the customer to engage in other activities instead of waiting in line. Such activities may comprise shopping or eating.

In one or more embodiments, the method and system advantageously permits “real-time” adjustment of the flow of customers to the attraction **22** via the first and second queues. This is advantageous since it permits optimization of the capacity of the attraction with the demand of customers. In the event the line of customers in the first queue **24** becomes excessively long, the system can provide for an adjustment in the number of customers permitted to access the attraction **22** via the second queue **26** and thus reduce the wait time associated with the first queue. In addition, in the event the capacity of the attraction **22** suddenly decreases, the system can provide for an adjustment in the number of customers and/or access times via the second queue **26** to prevent a build up of customers accessing the attraction **22** via the first and/or second queues. In the event the capacity of the attraction **22** increases, the system can provide for an additional number of customers to access the attraction **22** via the second queue **26** and/or adjust the access times to permit more customers to access the attraction.

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Of course, the foregoing description is that of one or more embodiments of the invention, and various changes and modifications may be made without departing from the spirit and scope of the invention, as defined by the claims.

What is claimed is:

1. A system for managing admission to an attraction comprising:
 - a first validator for establishing an entitlement of a customer to access the attraction;
 - a controller for generating a singular assigned time at which said customer may access the attraction, said assigned time comprising a next available time as determined and selected by an algorithm performed by said system; and
 - a second validator for permitting said customer to access said attraction at said assigned time.
2. The system in accordance with claim 1 including a media distributor for distributing an admission media to each customer entitled to access the attraction, said admission media including said assigned time.
3. The system in accordance with claim 2 wherein said admission media is utilized with said second validator to establish entitlement of the customer to access said attraction.
4. The system in accordance with claim 3 wherein said admission media comprises a printed pass.
5. The system in accordance with claim 1 wherein said first validator for establishing the entitlement comprises a card reader for reading a ticket belonging to a customer.
6. The system in accordance with claim 1 including a algorithm processor for determining at one or more times a capacity of said attraction, said algorithm processor for determining providing present capacity data to said controller for generating said assigned time.
7. The system in accordance with claim 1 wherein the attraction comprises a theme park ride.
8. The system in accordance with claim 7 including sensors associated with said attraction providing data regarding a capacity of said attraction to said controller for generating an assigned time.
9. The system in accordance with claim 1 including a first queue by which customers access said attraction and a second queue by which said customers access said attraction and wherein first validator establishes the entitlement of a customer to access the attraction via the second queue and said second validator is associated with said second queue.
10. A system for managing admission to an attraction comprising:
 - a first queue by which customers may access the attraction by waiting in line;
 - a second queue by which customers may access the attraction in a manner which avoids the first queue;
 - a first validator for validating an entitlement of a customer to access the second queue and providing a singular assigned time in the future at which an entitled customer may access the attraction via the second queue, wherein the assigned time is determined and selected by the system; and
 - a second validator for validating the entitled customer access to the attraction at the assigned time.
11. The system in accordance with claim 10 including a media distributor for distributing a media to an entitled customer, said media including said assigned time at which the entitled customer is entitled to access the attraction in the future via said second queue.
12. The system in accordance with claim 11 wherein said media comprises a printed pass.

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13. The system in accordance with claim 10 wherein said first validator comprises a card reader for reading a ticket.

14. The system in accordance with claim 10 wherein said system includes a controller for receiving data regarding a capacity of said attraction and providing times to be assigned by said media distributor.

15. The system in accordance with claim 14 wherein said controller includes a server.

16. The system in accordance with claim 10 including a database containing information regarding customers entitled to access said second queue.

17. The system in accordance with claim 16 wherein said database contains information regarding tickets belonging to customers.

18. The system in accordance with claim 10 including a display for displaying a wait time associated with said first queue.

19. The system in accordance with claim 10 including a display for displaying a time which is next to be assigned.

20. A method for managing admission to an attraction having a variable capacity comprising the steps of:

forming a first queue by which customers may access the attraction by waiting in line;

forming a second queue by which customers may access the attraction in a manner which avoids the first queue comprising the steps of verifying the entitlement of a customer to access the second queue, determining and selecting a singular assigned time, issuing an entitled customer said assigned time in the future at which the customer may access the attraction, permitting the customer to leave the area of the attraction, verifying the entitlement of the customer to access the attraction at the assigned time in the future, and if verified, permitting said customer to access the attraction at said assigned time.

21. The method in accordance with claim 20 including the step of issuing a media having said assigned time associated therewith.

22. The method in accordance with claim 21 wherein said step of issuing a media comprises printing a pass.

23. The method in accordance with claim 20 wherein said step of verifying the entitlement comprises obtaining information from a ticket belonging to a customer and comparing that information to verifying information.

24. The method in accordance with claim 23 wherein said verifying information comprises a list of authentic tickets.

25. The method in accordance with claim 20 including the step of calculating said time in the future.

26. The method in accordance with claim 20 including the step of receiving information regarding the capacity of said attraction.

27. The method in accordance with claim 20 wherein said step of verifying said customer is entitled to access said second queue includes determining whether the customer is already entitled to access a second queue associated with another attraction.

28. A system for managing admission to an attraction comprising:

at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

at least one second queue by which one or more customers may access said attraction in a manner which avoids said at least one first queue;

an access control system associated with said at least one second queue for validating an entitlement of at least

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one customer to access said attraction, determining and selecting a singular assigned time, and issuing to an entitled customer said assigned time in the future for accessing said attraction via said at least one second queue and for validating the right of said at least one customer to access said attraction via said at least one second queue at said assigned time in the future.

29. The system in accordance with claim 28 wherein said access control system includes at least one first validator for validating an entitlement of said at least one customer to access said attraction and assigning to an entitled customer said time in the future.

30. The system in accordance with claim 29 wherein at least one first validator is located remotely from said attraction.

31. The system in accordance with claim 29 wherein said at least one first validator comprises a ticket reader.

32. The system in accordance with claim 29 wherein said at least one first validator is arranged to validate at least one type of identifying information from the group consisting of: radio-frequency, retina, voice, thermal, finger or hand geometry and visual identification.

33. The system in accordance with claim 29 including at least one data storage device for storing entitled customer information and wherein said first validator is adapted to receive information from at least one customer and verify said information using said entitled customer information associated with said at least one data storage device.

34. The system in accordance with claim 28 including a media distributor for distributing a media having said assigned time associated therewith to said entitled customer.

35. The system in accordance with claim 34 wherein said media comprises a printed pass.

36. The system in accordance with claim 28 including a processor for generating said assigned time in the future assigned to said entitled customer.

37. The system in accordance with claim 36 including at least one element providing data regarding a present capacity of said attraction to said processor for use in generating said time.

38. The system in accordance with claim 36 wherein said processor generates said assigned time in the future based on at least one factor associated with said attraction selected from the group consisting of: capacity of said attraction, capacity of said attraction which is allocated to customers accessing said attraction via said at least one second queue, a total number of customers who may access said attraction, a current staffing level of said attraction, a future staffing level of said attraction, demographics of said customers, time information, and date information.

39. The system in accordance with claim 28 wherein said attraction is part of a venue to which access is gained with a main ticket and wherein said access control system is arranged to validate said entitlement of at least one customer to access said attraction by verifying said main ticket.

40. The system in accordance with claim 28 including at least one display displaying a time in the future associated with said at least one second queue which is next to be assigned.

41. The system in accordance with claim 28 including at least one display displaying an estimated wait time for accessing said attraction via said at least one first queue.

42. The system in accordance with claim 41 including a wait time generator for generating said estimated wait time.

43. The system in accordance with claim 42 wherein said wait time generator includes at least one input device providing information regarding a length of a line associated with said at least one first queue.

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44. The system in accordance with claim 28 including at least one data storage device for storing data regarding times previously assigned to customers and wherein said access control system is arranged to deny validation of said at least one customer to entitlement to an assigned time in the future if said customer has an outstanding unused assigned time associated with said at least one storage device.

45. The system in accordance with claim 29 including at least one second validator associated with said at least one second queue for validating an entitlement of at least one customer to access said attraction at said assigned time in the future.

46. The system in accordance with claim 35 including at least one second validator associated with said at least one second queue for validating an entitlement of said at least one customer to access said attraction at said assigned time in the future, said at least one second validator including a reader for reading said pass.

47. The system in accordance with claim 28 wherein a predetermined number of spots associated with said attraction which are assigned to customers accessing said attraction via said at least one second queue is varied over time.

48. A method for managing access of one or more customers to an attraction comprising:

establishing at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

establishing at least one second queue by which one or more customers may access said attraction in a manner which avoids said at least one first queue;

establishing entitlement of at least one customer and determining and selecting a singular assigned time in the future for each entitled customer for accessing said attraction via said at least one second queue; and

establishing entitlement of at least one customer to access said attraction via said at least one second queue at said assigned time in the future.

49. The method in accordance with claim 48 including the step of assigning a media to said at least one customer if entitlement to an assigned time in the future is established.

50. The method in accordance with claim 49 wherein the step of establishing entitlement of at least one customer to access said attraction via said second queue includes verifying said media.

51. The method in accordance with claim 50 wherein said verifying step comprises comparing said time in the future to a current time.

52. The method in accordance with claim 48 wherein said step of establishing entitlement of at least one customer to an assigned time in the future for accessing said attraction via said at least one second queue includes verifying that said customer does not have an outstanding assigned time in the future for accessing said attraction.

53. The method in accordance with claim 48 wherein said step of establishing entitlement of at least one customer to an assigned time in the future for accessing said attraction via said at least one second queue includes the step of verifying a ticket issued to said at least one customer.

54. The method in accordance with claim 48 including the step of assigning an entitled customer a time in the future.

55. The method in accordance with claim 48 wherein said assigned time in the future is varied dependent upon a changing capacity of said attraction over time.

56. The method in accordance with claim 48 including the step of assigning said times in the future in chronological order.

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57. The method in accordance with claim 48 including the step of displaying an estimated wait time associated with said at least one first queue.

58. The method in accordance with claim 48 including the step of displaying a next to be assigned time in the future for accessing said attraction via said at least one second queue.

59. The method in accordance with claim 48 including the step of permitting at least one customer associated with said at least one first queue to access said attraction when a spot associated with said attraction is not filled by said at least one customer associated with said at least one second queue.

60. The method in accordance with claim 48 wherein said assigned time in the future is generated based upon one or more factors affecting demand for and capacity of said attraction.

61. A method for managing access to an attraction located at a venue, said attraction having a first queue by which a customer may access said attraction and a second queue by which a customer may access said attraction in a manner which avoids the first queue comprising:

issuing a customer a ticket for accessing a venue;

verifying said ticket to determine entitlement of said customer to access said venue;

verifying said ticket to determine entitlement of said customer to a future time assignment for accessing said attraction via said second queue;

determining and selecting a singular assigned time for said customer to access said attraction in the future; and permitting said customer to access said attraction via said second queue at said future time.

62. The method in accordance with claim 61 wherein said ticket is verified to determine entitlement of said customer to access said venue and determine entitlement of said customer to a future time assignment in a single verification step.

63. The method in accordance with claim 62 wherein said single verification occurs at an entry point to said venue.

64. The method in accordance with claim 61 wherein said ticket is verified to determine entitlement of said customer to access said venue at a first location and said ticket is verified to determine entitlement of said customer to a future time assignment at a second location.

65. The method in accordance with claim 61 wherein there is at least one first and one second attraction associated with said venue and including the steps of assigning a first future time assignment for said at least one first attraction and a second future time assignment for said at least one second attraction if said ticket is verified.

66. The method in accordance with claim 61 including the step of issuing a pass to said customer having said future time assignment associated therewith.

67. The method in accordance with claim 66 wherein said step of permitting said customer to access said attraction via said second queue includes verifying said pass.

68. A method of managing access to an attraction comprising:

establishing at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

establishing at least one second queue by which one or more customers may access said attraction in a manner which avoids said at least one first queue;

issuing media to said customers, said media having an assigned time in the future associated therewith at which time said customer may access said attraction via

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said at least one second queue, said media having assigned times which are issued in a chronological order; and

permitting a customer having a media to access said attraction via said second queue at said assigned time in the future.

69. The method in accordance with claim 68 including the step of verifying entitlement of said customer to be issued said media.

70. The method in accordance with claim 68 including the step of comparing a current time to said assigned time in the future associated with said media for determining if said customer is permitted to access said attraction via said second queue.

71. The method in accordance with claim 68 wherein said media comprises a printed pass.

72. The method in accordance with claim 68 including the step of generating said assigned times based upon a demand for and capacity of said attraction.

73. The method in accordance with claim 68 including the step of generating said assigned times based upon a number of spots associated with said attraction allocated to customers accessing said attraction via said second queue in relation to a total number of spots associated with said attraction.

74. The method in accordance with claim 68 wherein said attraction is associated with a venue and including the steps of verifying entitlement of said customer to access said venue and issuing said media at said time said customer accesses said venue.

75. The method in accordance with claim 68 wherein said attraction is one of several at a venue and including the step of issuing said media having multiple assigned times in the future associated therewith, said times including a time at which said customer may access said attraction and a time at which said customer may access at least one other attraction of said venue.

76. The method in accordance with claim 68 wherein said attraction is associated with a venue and wherein said media is issued prior to said customer accessing said venue.

77. The system of claim 1 wherein said assigned time comprises a time range during which the customer may access the attraction.

78. The system of claim 10 wherein said assigned time comprises a time range during which the entitled customer may access the attraction.

79. The system of claim 20 wherein said assigned time comprises a time range during which the customer may access the attraction.

80. The system of claim 28 wherein said assigned time comprises a time range during which the customer may access the attraction.

81. The system of claim 48 wherein said assigned time comprises a time range during which the customer may access the attraction.

82. The system of claim 61 wherein said assigned time comprises a time range during which the customer may access the attraction.

83. A system for managing admission to an attraction comprising:

a first validator for establishing the entitlement of a customer to access the attraction;

a controller for unilaterally determining and issuing an assigned time at which said customer may access the attraction, said assigned time comprising a next available time as determined and selected by an algorithm performed by said system; and

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a second validator for permitting said customer to access said attraction at said assigned time.

84. The system of claim 83 wherein said assigned time comprises a time range during which the customer may access the attraction.

85. The system in accordance with claim 83 including a media distributor for distributing an admission media to each customer entitled to access the attraction, said admission media including said assigned time.

86. The system in accordance with claim 85 wherein said admission media is utilized with said second validator to establish entitlement of the customer to access said attraction.

87. The system in accordance with claim 86 wherein said admission media comprises a printed pass.

88. The system in accordance with claim 83 wherein said first validator for establishing the entitlement comprises a card reader for reading a ticket belonging to a customer.

89. The system in accordance with claim 83 including an algorithm processor for determining at one or more times a real time operating capacity of said attraction, said algorithm processor determining a mix ratio of first queue patrons and second queue patrons and providing data about said real time operating capacity and said mix ratio to said controller for generating said assigned time.

90. The system in accordance with claim 83 wherein the attraction comprises a theme park ride.

91. The system in accordance with claim 90 including sensors associated with said attraction providing data regarding a capacity of said attraction to said controller for generating an assigned time.

92. The system in accordance with claim 83 including a first queue by which customers access said attraction and a second queue by which said customers access said attraction and wherein first validator establishes the entitlement of a customer to access the attraction via the second queue and said second validator is associated with said second queue.

93. A system for managing admission to an attraction comprising:

a first queue by which customers may access the attraction by waiting in line;

a second queue by which customers may access the attraction in a manner which avoids the first queue;

a first validator for validating an entitlement of a customer to access the attraction at an assigned time in the fixture via the second queue, wherein the assigned time is determined and selected by the system; and

a second validator for validating the entitled customer access to the attraction at the assigned time.

94. The system in accordance with claim 93 including a media distributor for distributing a media to an entitled customer, said media including said assigned time at which the entitled customer is entitled to access the attraction in the future via said second queue.

95. The system in accordance with claim 94 wherein said media comprises a printed pass.

96. The system in accordance with claim 93 wherein said first validator comprises a card reader for reading a ticket.

97. The system in accordance with claim 93 wherein said system includes a controller for receiving data regarding a real time operating capacity of said attraction and providing times to be assigned by said media distributor in accordance with a mixed ratio of first queue patrons and second queue patrons.

98. The system in accordance with claim 97 wherein said controller includes a server.

99. The system in accordance with claim 93 including a database containing information regarding customers entitled to access said second queue.

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100. The system in accordance with claim **99** wherein said database contains information regarding tickets belonging to customers.

101. The system in accordance with claim **93** including a display for displaying a wait time associated with said first queue.

102. The system in accordance with claim **93** including a display for displaying a time which is next to be assigned.

103. The system of claim **93** wherein said assigned time comprises a time range during which the customer may access the attraction.

104. A method for managing admission to an attraction having a variable capacity comprising the steps of:

forming a first queue by which customers may access the attraction by waiting in line;

forming a second queue by which customers may access the attraction in a manner which avoids the first queue comprising the steps of verifying the entitlement of a customer to access the second queue, determining an assigned access time wherein a subsystem operatively coupled to the attraction determines and selects the assigned time, issuing an entitled customer the assigned access time at which the customer may access the attraction, permitting the customer to leave the area of the attraction, verifying the entitlement of the customer to access the attraction at the assigned time in the future, and if verified, permitting said customer to access the attraction.

105. The system of claim **104** wherein said assigned time comprises a time range during which the customer may access the attraction.

106. The method in accordance with claim **104** including the step of issuing a media having said assigned time associated therewith.

107. The method in accordance with claim **106** wherein said step of issuing a media comprises printing a pass.

108. The method in accordance with claim **104** wherein said step of verifying the entitlement comprises obtaining information from a ticket belonging to a customer and comparing that information to verifying information.

109. The method in accordance with claim **108** wherein said verifying information comprises a list of authentic tickets.

110. The method in accordance with claim **104** including the step of receiving information regarding the capacity of said attraction.

111. The method in accordance with claim **104** wherein said step of verifying said customer is entitled to access said second queue includes determining whether the customer is already entitled to access a second queue associated with another attraction.

112. A system for managing admission to an attraction comprising:

at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

at least one second queue by which one or more customers may access said attraction in a manner which avoids said at least one first queue;

an access control system associated with said at least one second queue for validating an entitlement of at least one customer to access said attraction and determining selecting and issuing to an entitled customer an assigned time in the future for accessing said attraction via said at least one second queue and for validating the right of said at least one customer to access said attraction via said at least one second queue at said time in the future.

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113. The system in accordance with claim **112** wherein said access control system includes at least one first validator for validating an entitlement of said at least one customer to access said attraction and assigning to an entitled customer said time in the future.

114. The system in accordance with claim **113** wherein at least one first validator is located remotely from said attraction.

115. The system in accordance with claim **113** wherein said at least one first validator comprises a ticket reader.

116. The system in accordance with claim **113** wherein said at least one first validator is arranged to validate at least one type of identifying information from the group consisting of: magnetic strip, bar code, radio-frequency, iris, fingerprint, retina, voice, thermal, finger or hand geometry, and visual identification.

117. The system in accordance with claim **113** including at least one data storage device for storing entitled customer information and wherein said first validator is adapted to receive information from at least one customer and verify said information using said entitled customer information associated with said at least one data storage device.

118. The system in accordance with claim **112** including a media distributor for distributing a media having said future time associated therewith to said entitled customer.

119. The system in accordance with claim **118** wherein said media comprises a printed pass.

120. The system in accordance with claim **112** including a processor for determining said time in the future assigned to said entitled customer.

121. The system in accordance with claim **120** including at least one element providing data regarding a present capacity of said attraction to said processor for use in determining said time.

122. The system in accordance with claim **120** wherein said processor determines said time in the future based on at least one factor associated with said attraction selected from the group consisting of: capacity of said attraction, capacity of said attraction which is allocated to customers accessing said attraction via said at least one second queue, a total number of customers who may access said attraction, a current staffing level of said attraction, a future staffing level of said attraction, demographics of said customers, time information, and date information.

123. The system in accordance with claim **112** wherein said attraction is part of a venue to which access is gained with a main ticket and wherein said access control system is arranged to validate said entitlement of at least one customer to access said attraction by verifying said main ticket.

124. The system in accordance with claim **112** including at least one display displaying a time in the future associated with said at least one second queue which is next to be assigned.

125. The system in accordance with claim **112** including at least one display displaying an estimated wait time for accessing said attraction via said at least one first queue.

126. The system in accordance with claim **125** including a wait time generator for generating said estimated wait time.

127. The system in accordance with claim **126** wherein said wait time generator includes at least one input device providing information regarding a length of a line associated with said at least one first queue.

128. The system in accordance with claim **112** including at least one data storage device for storing data regarding times previously assigned to customers and wherein said access control system is arranged to deny validation of said

at least one customer to entitlement to an assigned time in the future if said customer has an outstanding unused assigned time associated with said at least one storage device.

129. The system in accordance with claim **113** including at least one second validator associated with said at least one second queue for validating an entitlement of at least one customer to access said attraction at said assigned time in the future.

130. The system in accordance with claim **119** including at least one second validator associated with said at least one second queue for validating an entitlement of said at least one customer to access said attraction at said assigned time in the future, said at least one second validator including a reader for reading said pass.

131. The system in accordance with claim **112** wherein a predetermined number of spots associated with said attraction which are assigned to customers accessing said attraction via said at least one second queue is varied over time.

132. The system of claim **112** wherein said assigned time comprises a time range during which the customer may access the attraction.

133. A method for managing access of one or more customers to an attraction comprising:

establishing at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

establishing at least one second queue by which one or more customers may access said attraction in a manner which avoids said at least one first queue;

establishing entitlement of at least one customer to an assigned time in the future for accessing said attraction via said at least one second queue, wherein the assigned time is determined and selected by a subsystem operatively coupled with the attraction; and

establishing entitlement of at least one customer to access said attraction via said at least one second queue at said assigned time in the future.

134. The method in accordance with claim **133** including the step of assigning a media to said at least one customer if entitlement to an assigned time in the future is established.

135. The method in accordance with claim **134** wherein the step of establishing entitlement of at least one customer to access said attraction via said second queue includes verifying said media.

136. The method in accordance with claim **135** wherein said verifying step comprises comparing said time in the future to a current time.

137. The method in accordance with claim **133** wherein said step of establishing entitlement of at least one customer to an assigned time in the future for accessing said attraction via said at least one second queue includes verifying that said customer does not have an outstanding assigned time in the future for accessing said attraction.

138. The method in accordance with claim **133** wherein said step of establishing entitlement of at least one customer to an assigned time in the future for accessing said attraction via said at least one second queue includes the step of verifying a ticket issued to said at least one customer.

139. The method in accordance with claim **133** including the step of assigning an entitled customer a time in the future.

140. The method in accordance with claim **133** wherein said assigned time in the future is varied dependent upon a changing capacity of said attraction over time.

141. The method in accordance with claim **133** including the step of assigning said times in the future in chronological order.

142. The method in accordance with claim **133** including the step of displaying an estimated wait time associated with said at least one first queue.

143. The method in accordance with claim **133** including the step of displaying a next to be assigned time in the future for accessing said attraction via said at least one second queue.

144. The method in accordance with claim **133** including the step of permitting at least one customer associated with said at least one first queue to access said attraction when a spot associated with said attraction is not filled by said at least one customer associated with said at least one second queue.

145. The method in accordance with claim **133** wherein said time in the future is determined based upon one or more factors affecting demand for and capacity of said attraction.

146. The system of claim **133** wherein said assigned time comprises a time range during which the customer may access the attraction.

147. A method of managing access to an attraction comprising:

establishing at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

establishing at least one second queue by which one or more customers may access said attraction in a manner which avoids said at least one first queue;

displaying information regarding an estimated wait time associated with said at least one first queue;

displaying information regarding a next future time to be assigned to a customer for accessing said attraction via said at least one second queue, wherein the time to be assigned is determined and selected by a subsystem operatively coupled with said attraction; and

permitting a customer to elect to access said attraction via said at least one first queue or said at least one second queue.

148. The method in accordance with claim **147** including the step of verifying said customer is entitled to be assigned said fixture time if said customer elects to access said attraction via said at least one second queue.

149. The method in accordance with claim **147** wherein the subsystem determines and selects said time to be assigned based on a changing capacity of said attraction.

150. The method in accordance with claim **147** including the step of verifying said customer is entitled to access said attraction via said at least one second queue at said future time.

151. The method in accordance with claim **148** including the step of determining if said customer has any outstanding assigned fixture times.

152. The method in accordance with claim **147** including the step of allocating a number of spots associated with said attraction to customers accessing said attraction via said at least one second queue.

153. The system of claim **147** wherein said assigned time comprises a time range during which the customer may access the attraction.

154. A method for managing access to an attraction located at a venue, said attraction having a first queue by which a customer may access said attraction and a second queue by which a customer may access said attraction in a manner which avoids the first queue comprising:

issuing a customer a ticket for accessing a venue;

verifying said ticket to determine entitlement of said customer to access said venue;

verifying said ticket to determine entitlement of said customer to a future time assignment for accessing said attraction via said second queue, wherein said future time assignment is determined and selected by a subsystem operatively coupled with said attraction; and
5 permitting said customer to access said attraction via said second queue at said future time.

155. The method in accordance with claim **154** wherein said ticket is verified to determine entitlement of said customer to access said venue and determine entitlement of
10 said customer to a future time assignment in a single verification step.

156. The method in accordance with claim **155** wherein said single verification occurs at an entry point to said venue.

157. The method in accordance with claim **154** wherein
15 said ticket is verified to determine entitlement of said customer to access said venue at a first location and said ticket is verified to determine entitlement of said customer to a fixture time assignment at a second location.

158. The method in accordance with claim **154** wherein
20 there is at least one first and one second attraction associated with said venue and including the steps of assigning a first future time assignment for said at least one first attraction and a second future time assignment for said at least one second attraction if said ticket is verified.

159. The method in accordance with claim **154** including the step of issuing a pass to said customer having said future time assignment associated therewith.

160. The method in accordance with claim **154** wherein
30 said step of permitting said customer to access said attraction via said second queue includes verifying said pass.

161. The system of claim **154** wherein said assigned time comprises a time range during which the customer may access the attraction.

162. A method of managing access to an attraction comprising:

establishing at least one first queue by which one or more customers may access said attraction generally in an order in which customers access said at least one first queue;

establishing a least one second queue by which one or more customers may access said attraction in a manner which avoids said at said at least one first queue;

issuing media to said customers, said media having an
45 assigned time in the future associated therewith at which time said customer may access said attraction via

said at least one second queue, said media having assigned times which are determined and selected by a subsystem operatively coupled with the attraction and are issued in a chronological order; and

5 permitting a customer having a media to access said attraction via said second queue at said assigned time in the future.

163. The method in accordance with claim **162** including the step of determining if said customer is entitled to be
10 issued said media.

164. The method in accordance with claim **162** including the step of comparing a current time to said assigned time in the fixture associated with said media for determining if said customer is permitted to access said attraction via said second queue.

165. The method in accordance with claim **162** wherein said media comprises a printed pass.

166. The method in accordance with claim **162** wherein said subsystem determines and selects said assigned times based upon a demand for and capacity of said attraction.

167. The method in accordance with claim **162** wherein said subsystem determines and selects said assigned times based upon a number of spots associated with said attraction allocated to customers accessing said attraction via said second queue in relation to a total number of spots associated with said attraction.

168. The method in accordance with claim **162** wherein said attraction is associated with a venue and including the steps of verifying entitlement of said customer to access said venue and issuing said media at said time said customer accesses said venue.

169. The method in accordance with claim **162** wherein said attraction is one of several at a venue and including the step of issuing said media having multiple assigned times in the future associated therewith, said times including a time at which said customer may access said attraction and a time at which said customer may access at least one other attraction of said venue.

170. The method in accordance with claim **162** wherein said attraction is associated with a venue and wherein said media is issued prior to said customer accessing said venue.

171. The system of claim **162** wherein said assigned time comprises a time range during which the customer may access the attraction.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,173,209 B1
DATED : January 9, 2001
INVENTOR(S) : Bruce G. Laval and Gregory B. Hale

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claim 93, column 24,
Line 43, "fixture" should be -- future --.

Claim 148, column 28,
Line 41, "fixture" should be -- future --.

Claim 157, column 29,
Line 19, "fixture" should be -- future --.

Claim 164, column 30,
Line 14, "fixture" should be -- future --.

Signed and Sealed this

Thirtieth Day of October, 2001

Attest:

Nicholas P. Godici

Attesting Officer

NICHOLAS P. GODICI
Acting Director of the United States Patent and Trademark Office

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