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(12) **United States Patent**  
**Brenner et al.**

(10) **Patent No.:** **US 6,554,709 B1**  
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(54) **INTERACTIVE WAGERING SYSTEMS AND PROCESSES**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/373,120**

(22) Filed: **Aug. 12, 1999**

#### Related U.S. Application Data

(63) Continuation of application No. 09/138,953, filed on Aug. 24, 1998, now Pat. No. 6,004,211, which is a continuation of application No. 08/526,007, filed on Sep. 8, 1995, now Pat. No. 5,830,068.

(51) Int. Cl.<sup>7</sup> ..... **A63F 9/24**

(52) U.S. Cl. .... **463/42**

(58) Field of Search ..... 463/42, 41, 40, 463/28, 25, 16, 6, 1; 700/91, 92, 93

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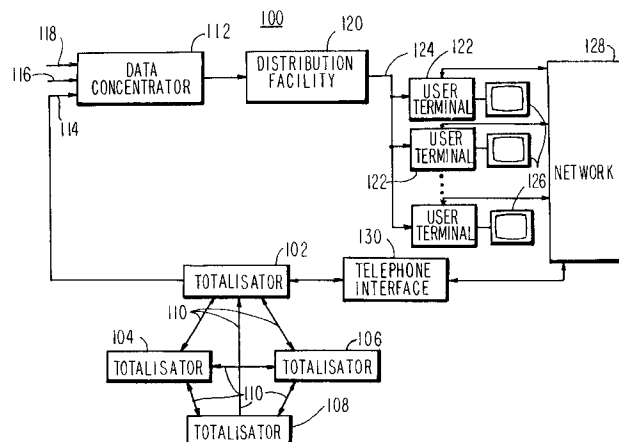
Primary Examiner—Michael O'Neill

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(57) **ABSTRACT**

Systems and processes for interactive off-track wagering are provided. A user reviews racing information and places bets using an off-track terminal. The user interactively selects a desired racetrack and race. Odds, pools, and payoff amounts may be viewed for a variety of complex wager types. To place a wager, the user selects a wager type, wager amount, and the desired runners. Account information can be reviewed. If desired, the user can transfer funds from a bank account to an account used for wagering. Racing videos can be viewed while the user reviews odds and places bets. Video clips of past races can be ordered. Related advertisements can be presented using text or video clips. Merchandise may be ordered interactively. Information regarding system usage may be gathered.

**15 Claims, 50 Drawing Sheets**



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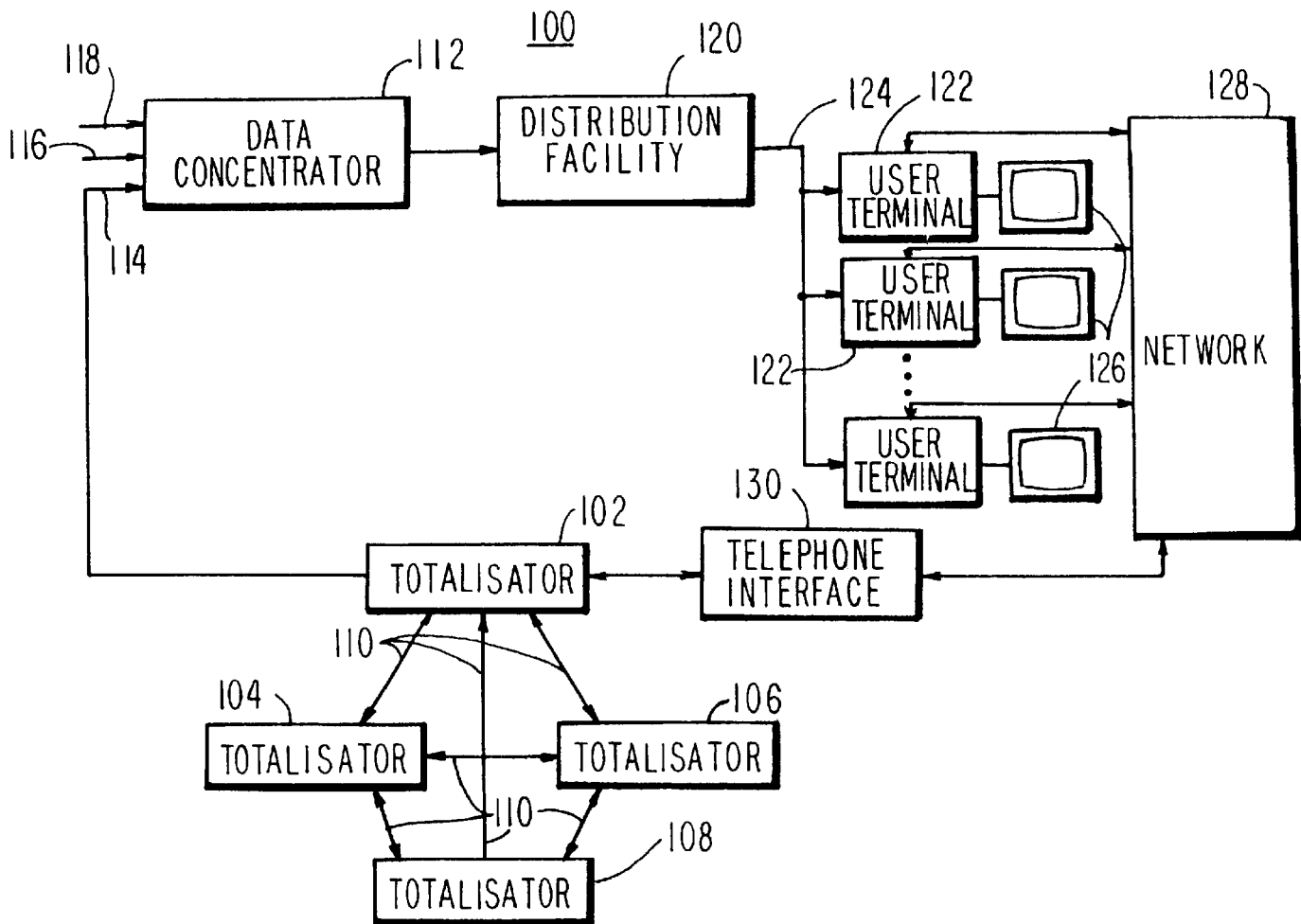
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*FIG. 1*

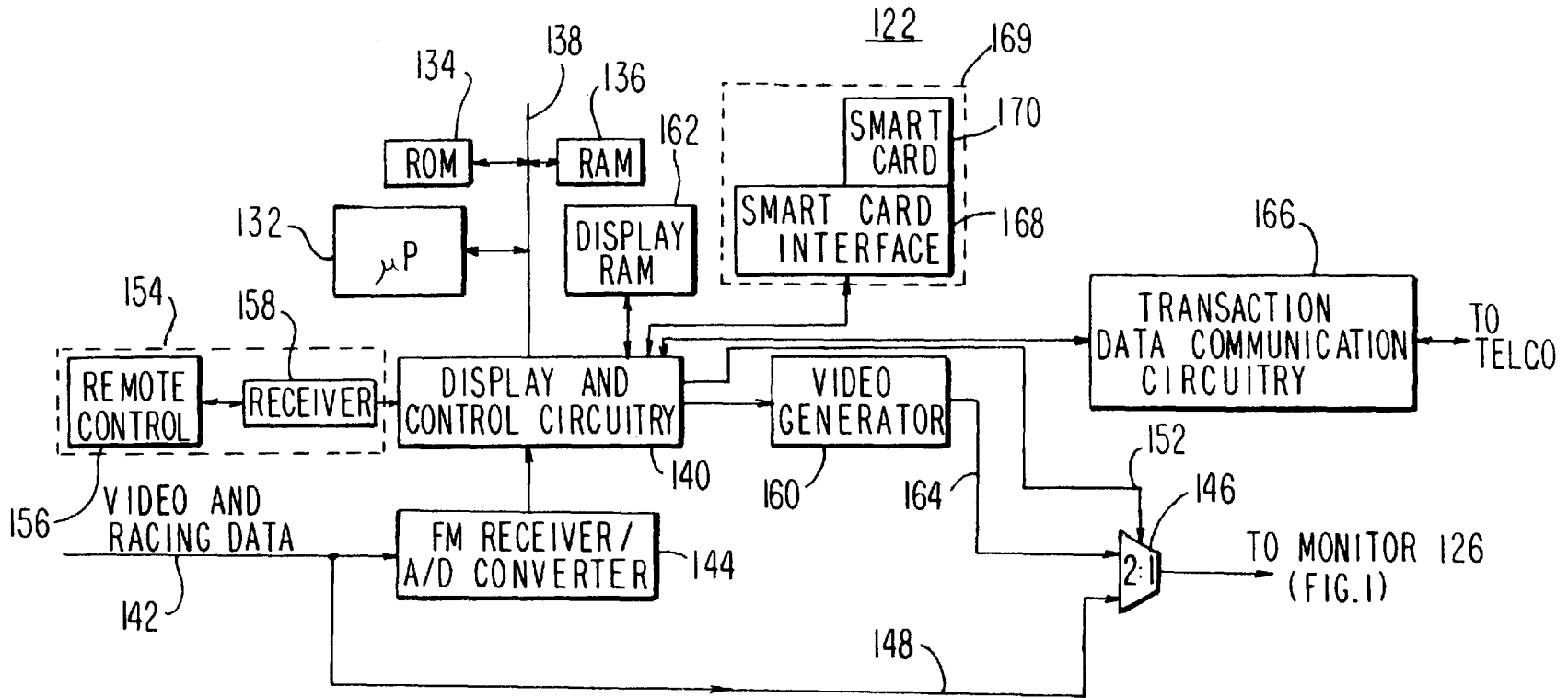


FIG. 2

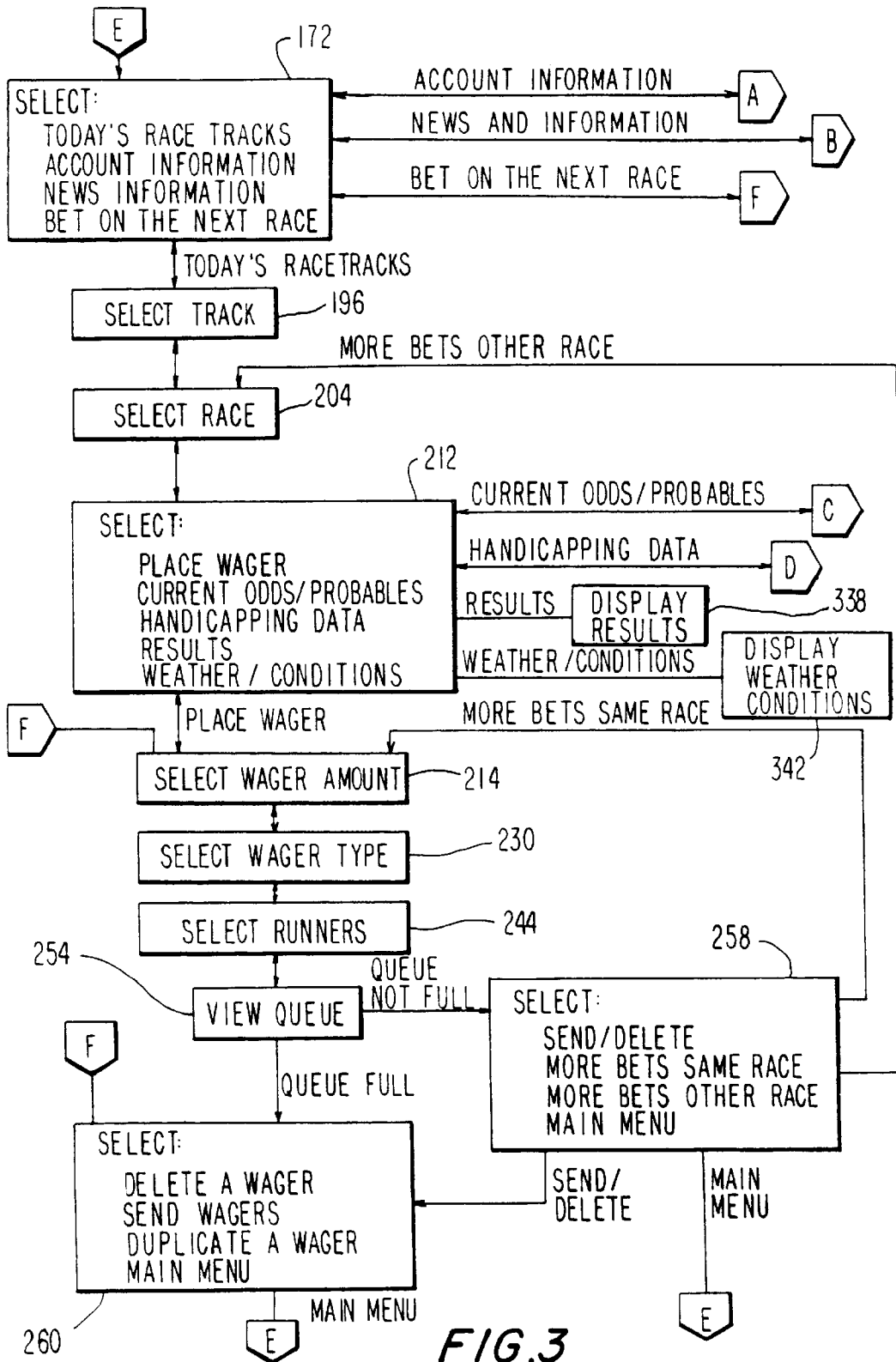
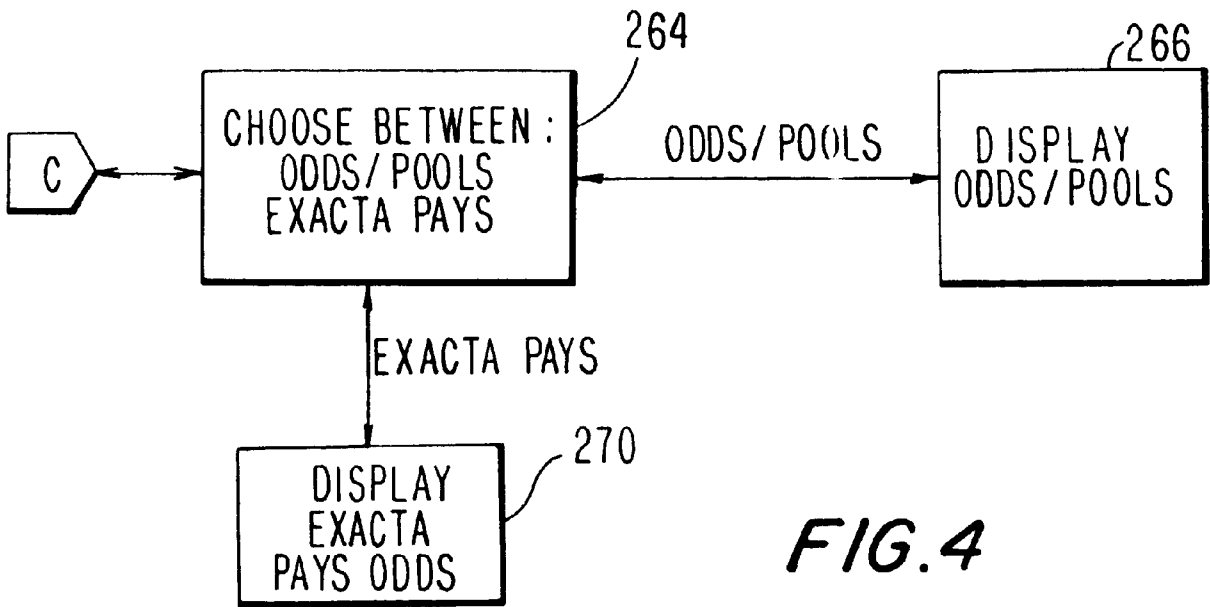


FIG. 3



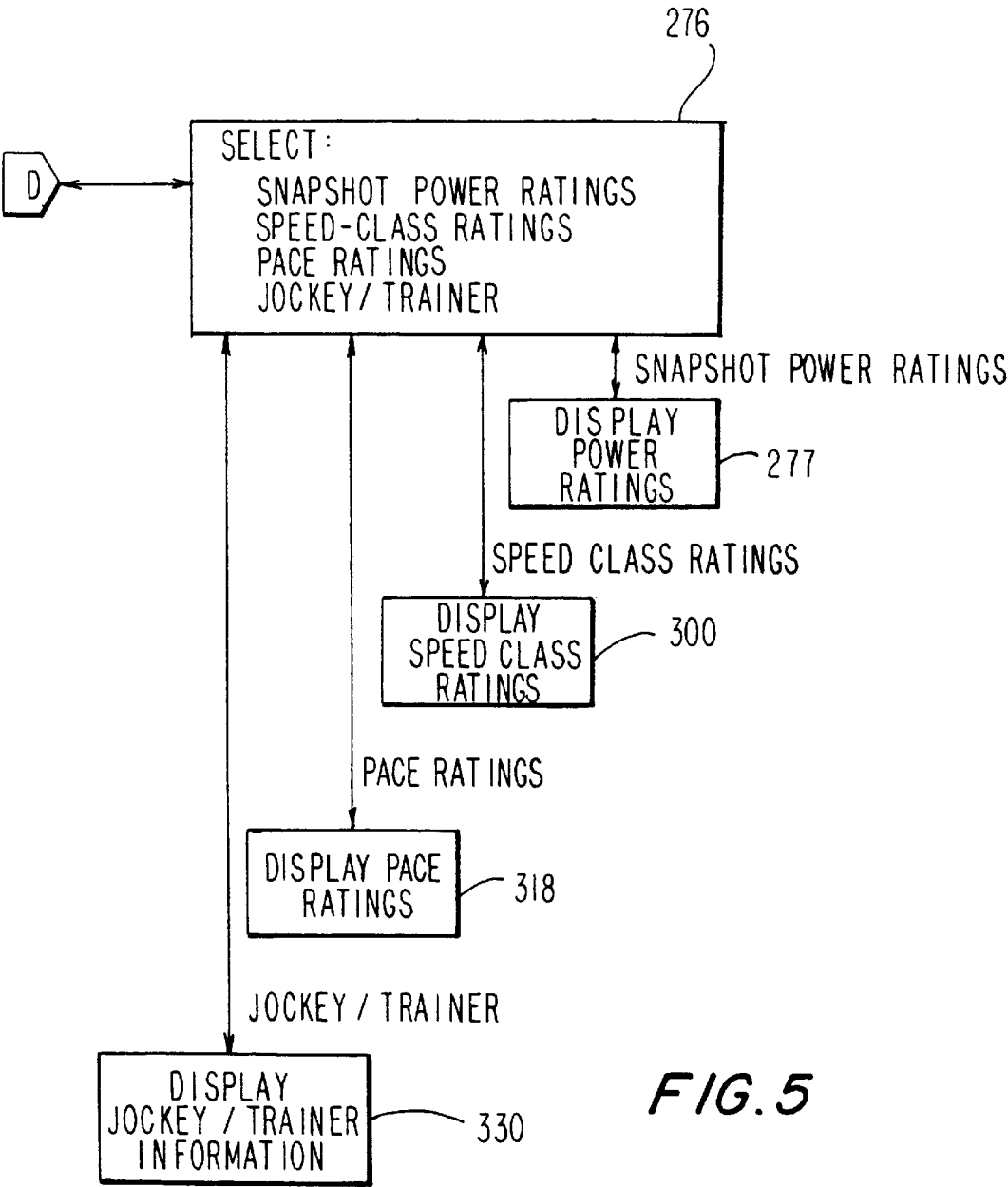


FIG. 5



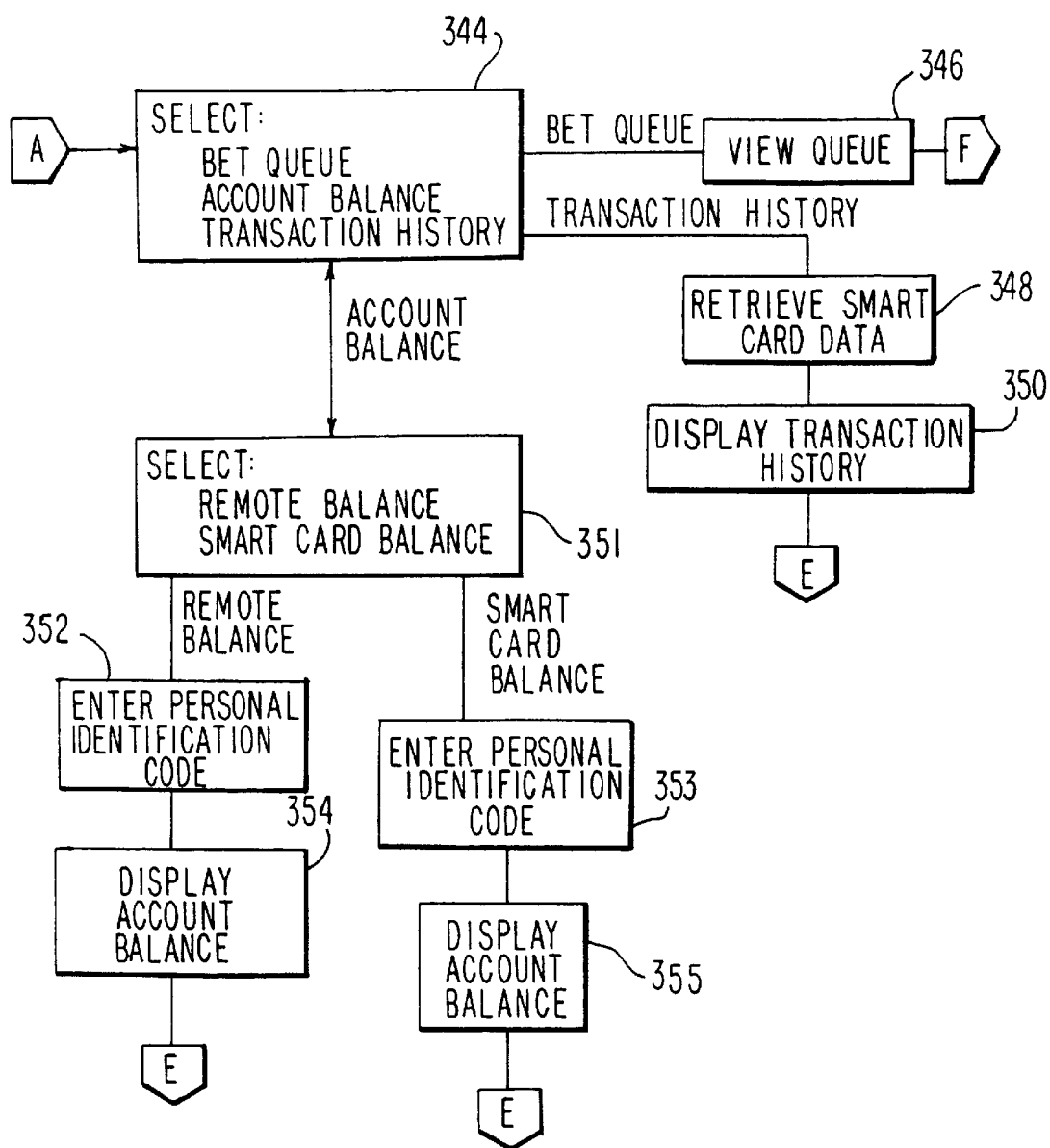
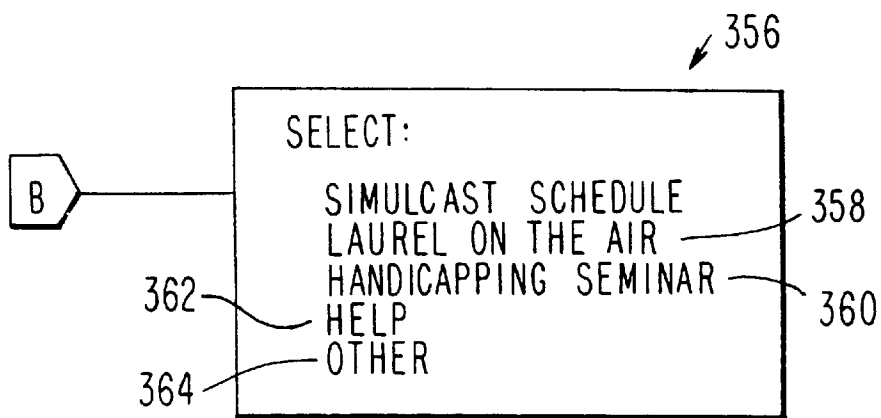
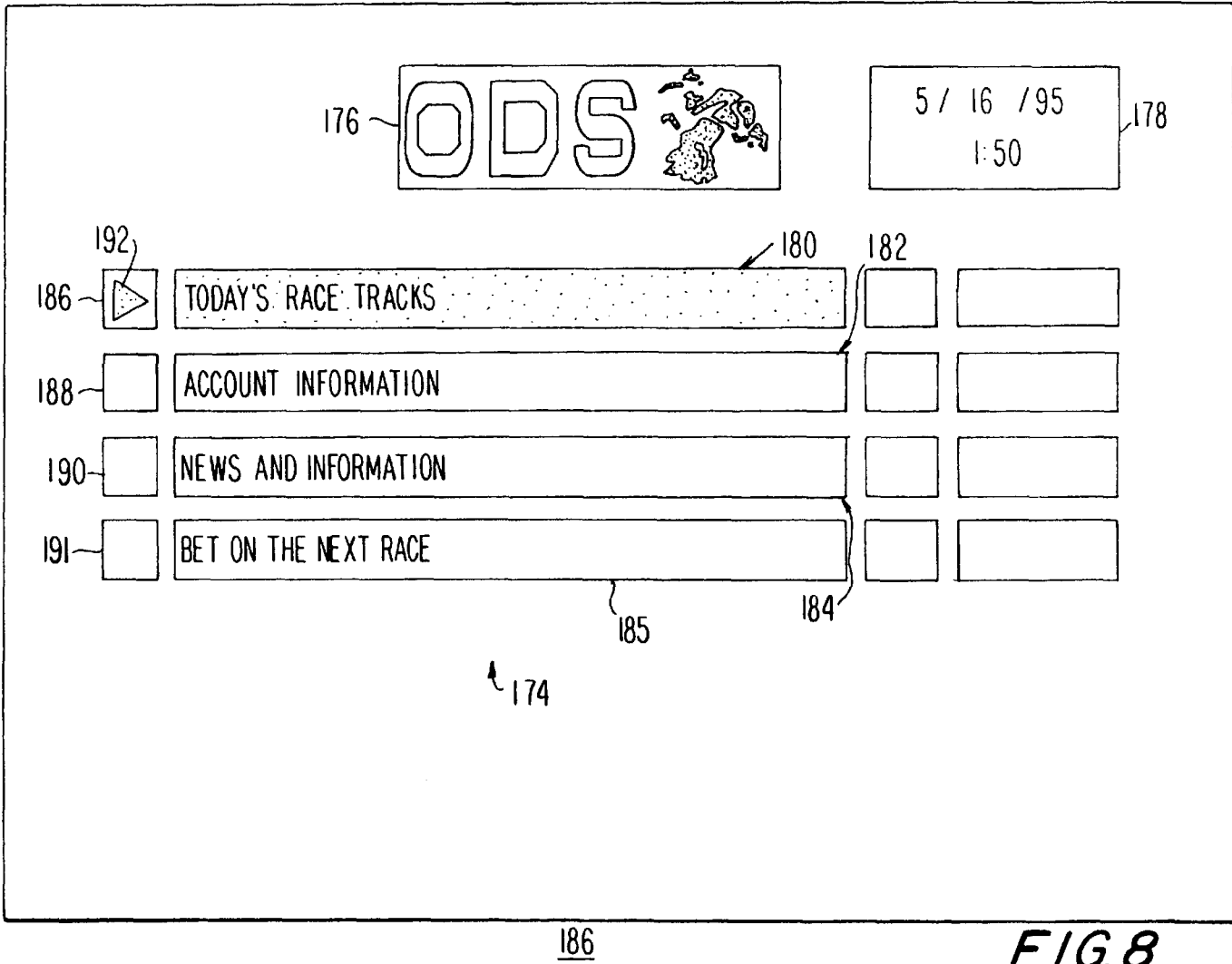
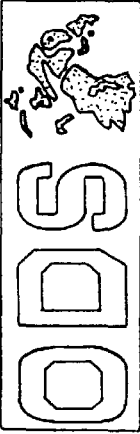


FIG. 6


*FIG. 7*



5 / 16 / 95  
1:50



192



198

PIMLICO

HIALEAH PARK

PHILADELPHIA PARK

RACE

3

RACE

2

RACE

3

POST

1:56

POST

1:28

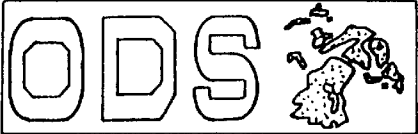

POST

1:41

200

202

FIG. 9


PIM				5 / 16 / 95 1:50	
			POST		
<input type="checkbox"/>	RACE 1	F		12:00	
<input type="checkbox"/>	RACE 2	F		1:26	
192 →	 RACE 3			1:56	
<input type="checkbox"/>	RACE 4			1:30	
<input type="checkbox"/>	RACE 5			2:00	
<input type="checkbox"/>	RACE 6			2:30	
<input type="checkbox"/>	CONTINUED			1 OF 2	


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FIG. 10

PIM

5 / 16 / 95  
1:50

  
OOS


RACE 7

POST

3:00

RACE 8

3:00

CONTINUED

2 OF 2

FIG. 11

208

FIG. 12

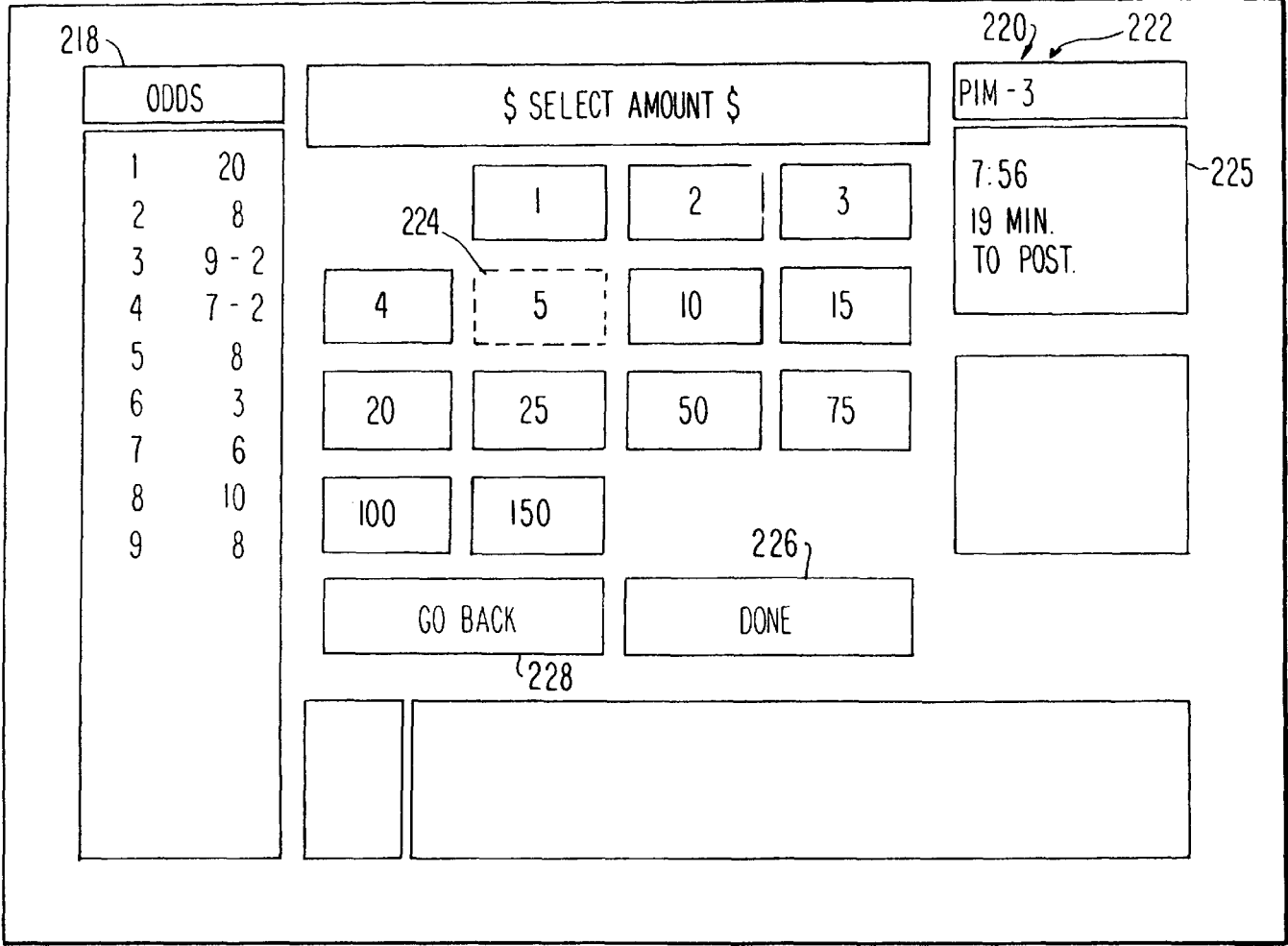


FIG. 13

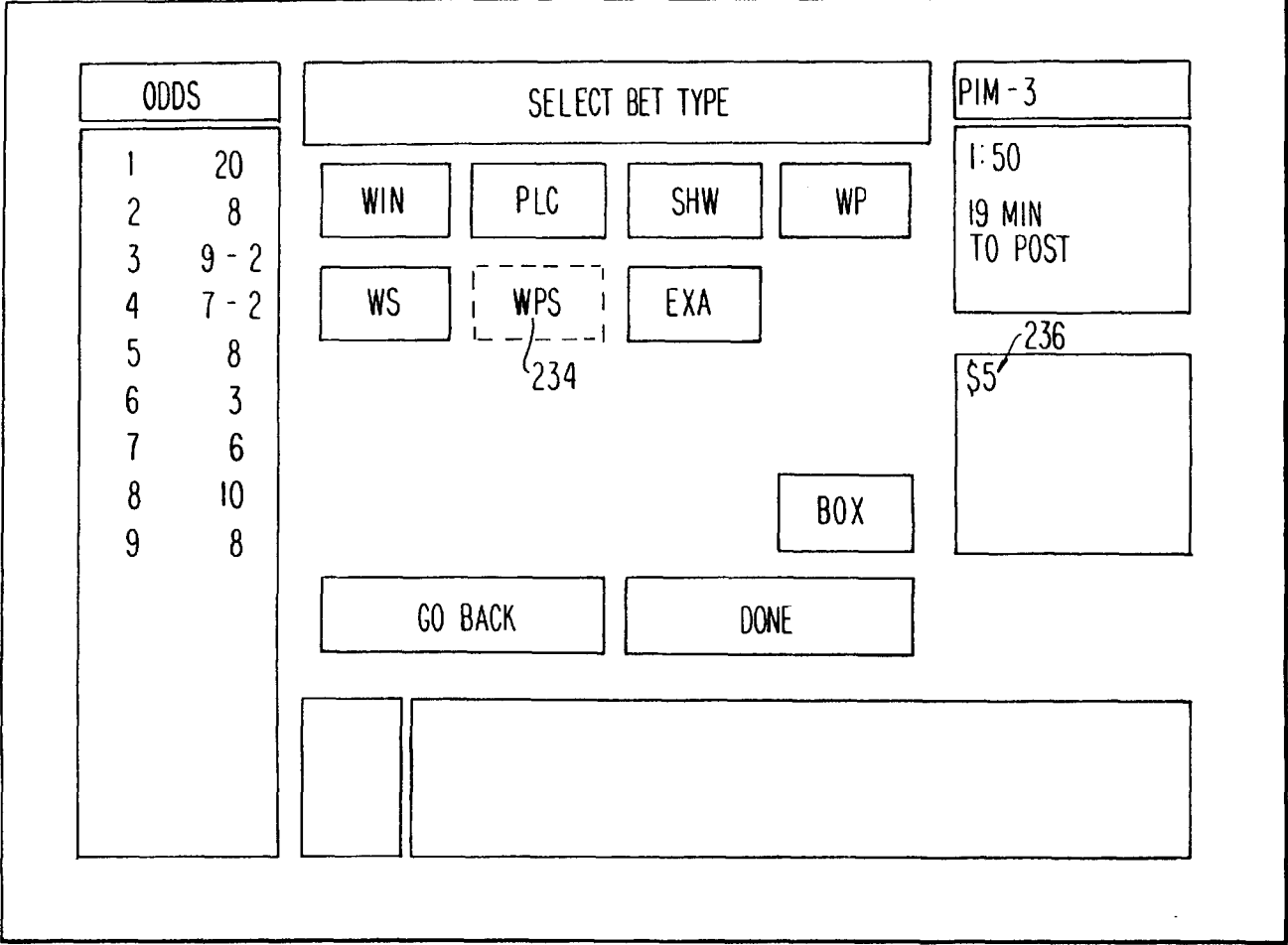




FIG. 14

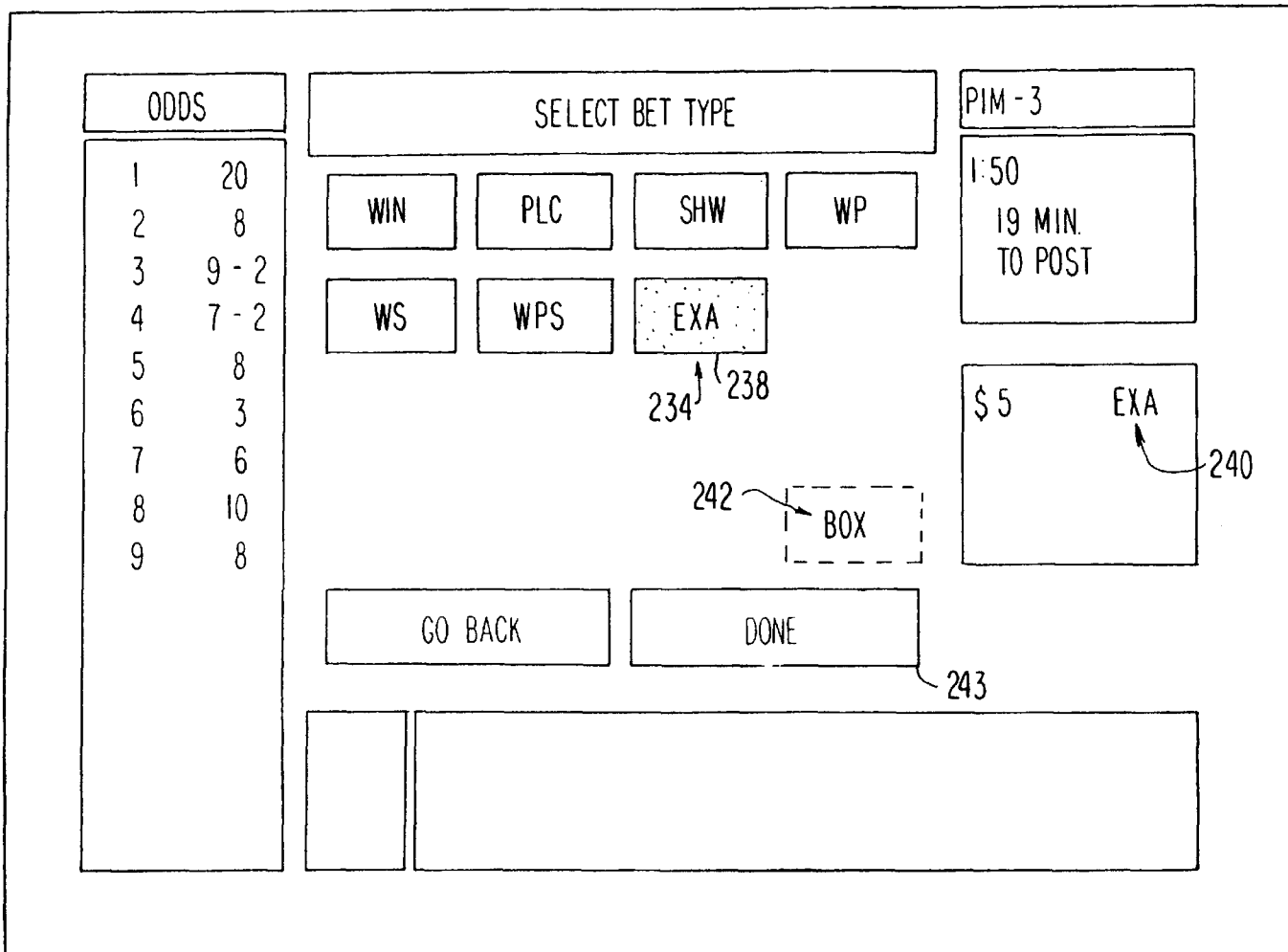


FIG. 15

ODDS		SELECT HORSE				PIM - 3	
1	20	1	2	3	4	1:50	
2	8					19 MIN. TO POST	
3	9 - 2	5	6	7	8		
4	7 - 2						
5	8						
6	3	9					
7	6						
8	10						
9	8						
		GO BACK		DONE		250	
		1ST 2ND		6.7 ← 246 2 ← 248			

252

FIG. 16

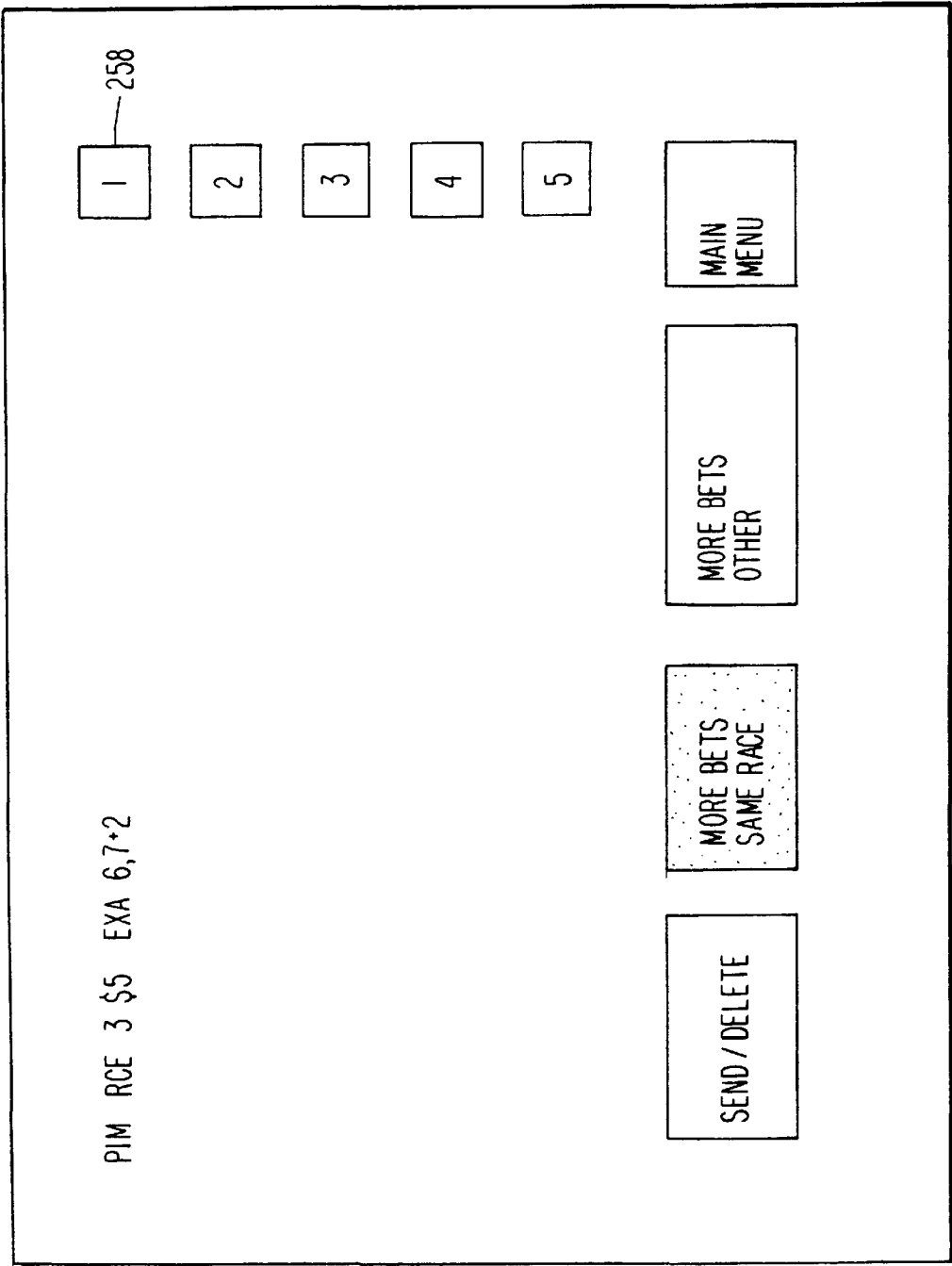
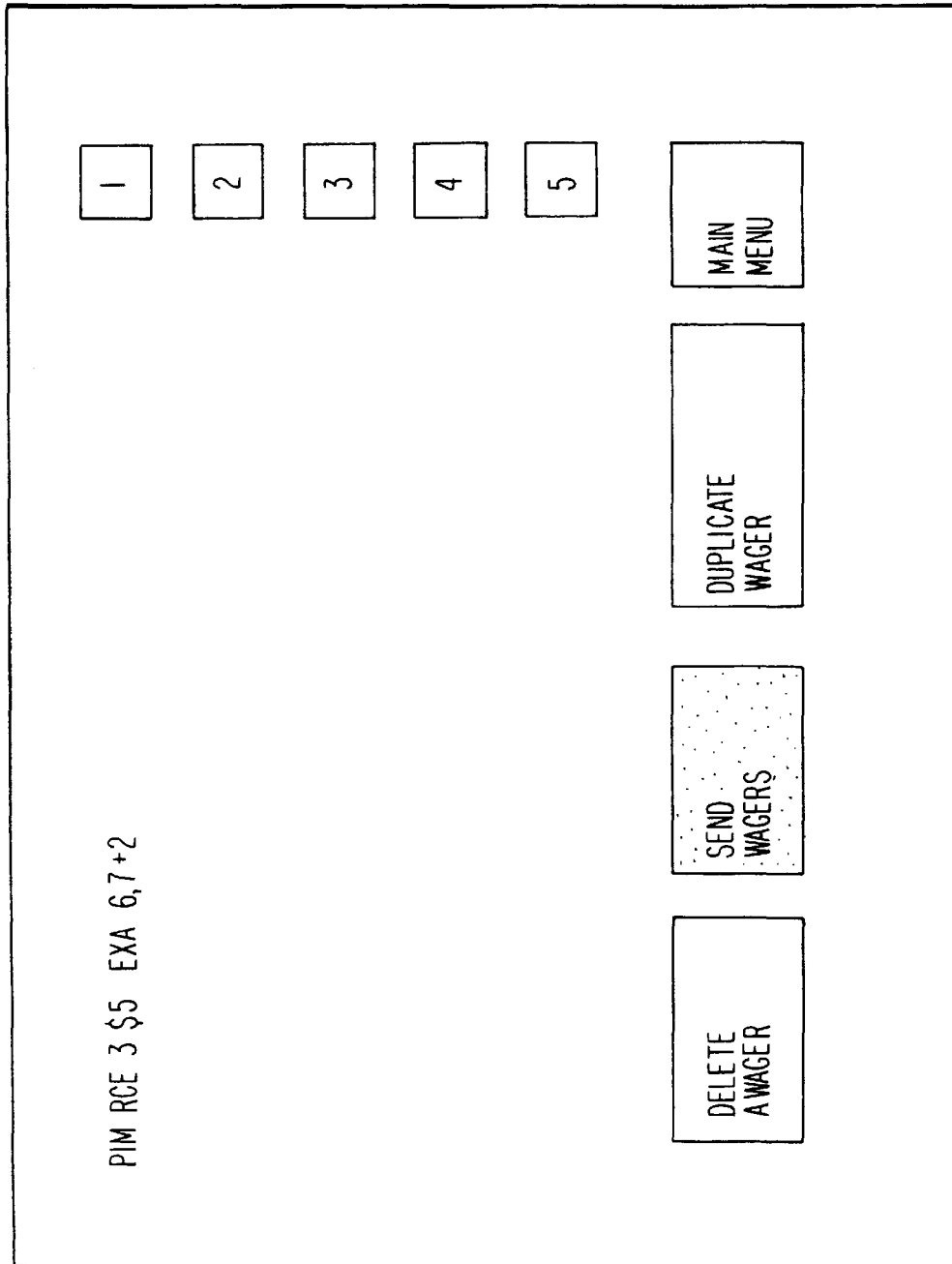


FIG. 17




PIM RCE 3		ODS 		5 / 16 / 95 1:50	
HRS	ODDS	WIN	PLACE	SHOW	
1	20/1	70	19	21	
2	8/1	91	24	12	
3	9/2	126	43	31	
4	7/2	128	17	8	
5	8/1	97	51	32	
6	3/1	340	110	117	
7	6/1	176	61	20	
8	10/1	19	11	5	
TOTALS (ALL)		1102	350	255	

FIG. 19

ODDS		1 AND	AND 1	PIM - 3	
1	20	--	--	1:50	
2	8	150	159	19 MIN.	
3	9-2	212	222	TO POST	
4	7-2	464	365		
5	8	425	255		
6	3	511	189		
7	6	269	111	EXACTA PAYS	
8	10	511	567		
9	8	1277	1022		
				274	
				POOL: \$ 17,000	
				(USE UP/DOWN KEYS FOR NEXT HORSE)	

280		282	292	294	296	288
RACE 1		5.00	CL \$17.5K	CR68	\$14.6	AGE 2
290	P#	HORSE NAME	DAYS OFF	W/ST D-SP	MORN. ODDS	POWER RATING
	1.	BIG FUZZY	2	0/3	3/1	61.7
	2.	TRAE	13	0/2	6/1	55.5
	3.	DIAMOND RIO		0/2	10/1	0.0
	4.	BUBBA FORBES		0/2	12/1	0.0
	5.	DESIARD	13	0/1	6/1	56.5
	6.	BYOU BUM	13	0/2	8/1	56.6
	7.	RUN IN THE FAST LANE	2	0/1	12/1	51.2
	8.	SURF'S UP DUDE	13	0/1	7/2	57.7
	9.	RAJA'S BEST SWIN	13	0/2	10/1	55.7
USE UP/DOWN KEYS FOR MORE INFO						

278**FIG. 20**

304		308	310	312	314
RACE 1 5.0D		CL \$17.5K	CR68	\$14.6	AGE 2
P# HORSE NAME		SR	SR D/S	SR HI	CR LAST
306	1. BIG FUZZY	0	66	67	68
	2. TRACE	177	61	61	69
	3. DIAMOND RIO	184	0	0	0
	4. BUBBA FORBES	191	0	0	0
	5. DESIARD	198	62	62	68
	6. BYOU BUM	205	61	62	69
	7. RUN IN THE FAST LANE	212	58	58	67
	8. SURF'S UP DUDE	219	54	54	68
	9. ROJA'S BEST SWIN	226	58	62	69
316					
USE UP/DOWN ARROW KEYS FOR MORE INFO					

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FIG. 21



RACE 1	5.0D	CL \$17.5K	CR 68	\$14.6K	AGE 2
P#	HORSE NAME	EARLY	MID	FIN	#R
1.	BIG FUZZY	3.3	3.8	3.0	10
2.	TRACE	3.4	3.7	3.0	10
3.	DIAMOND RIO	⋮	⋮	⋮	⋮
4.	⋮	⋮	⋮	⋮	⋮
5.	⋮	↑	↑	↑	↑
6.		322	324	326	328
7.					
8.					
9.					
USE UP/DOWN KEYS FOR MORE INFO					

320*FIG. 22*

RACE 1		5.0D	CL \$17.5K	CR68	\$14.6K	AGE 2
P#	JOCKEY/TRAINER		WINS	1	2	3
1.	HERBERT, JR / BISANO		2	2	4	2
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
USE UP/DOWN KEYS FOR MORE INFO						

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FIG 23

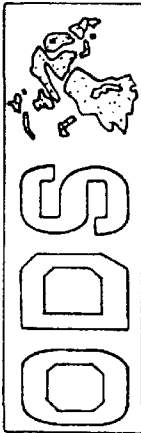
PIM RCE 2		5 / 16 / 95 1:50
RESULTS		
WIN	PLACE	SHOW
9	4.00	2.80
1	3.20	2.40
2		2.40
340		

FIG. 24

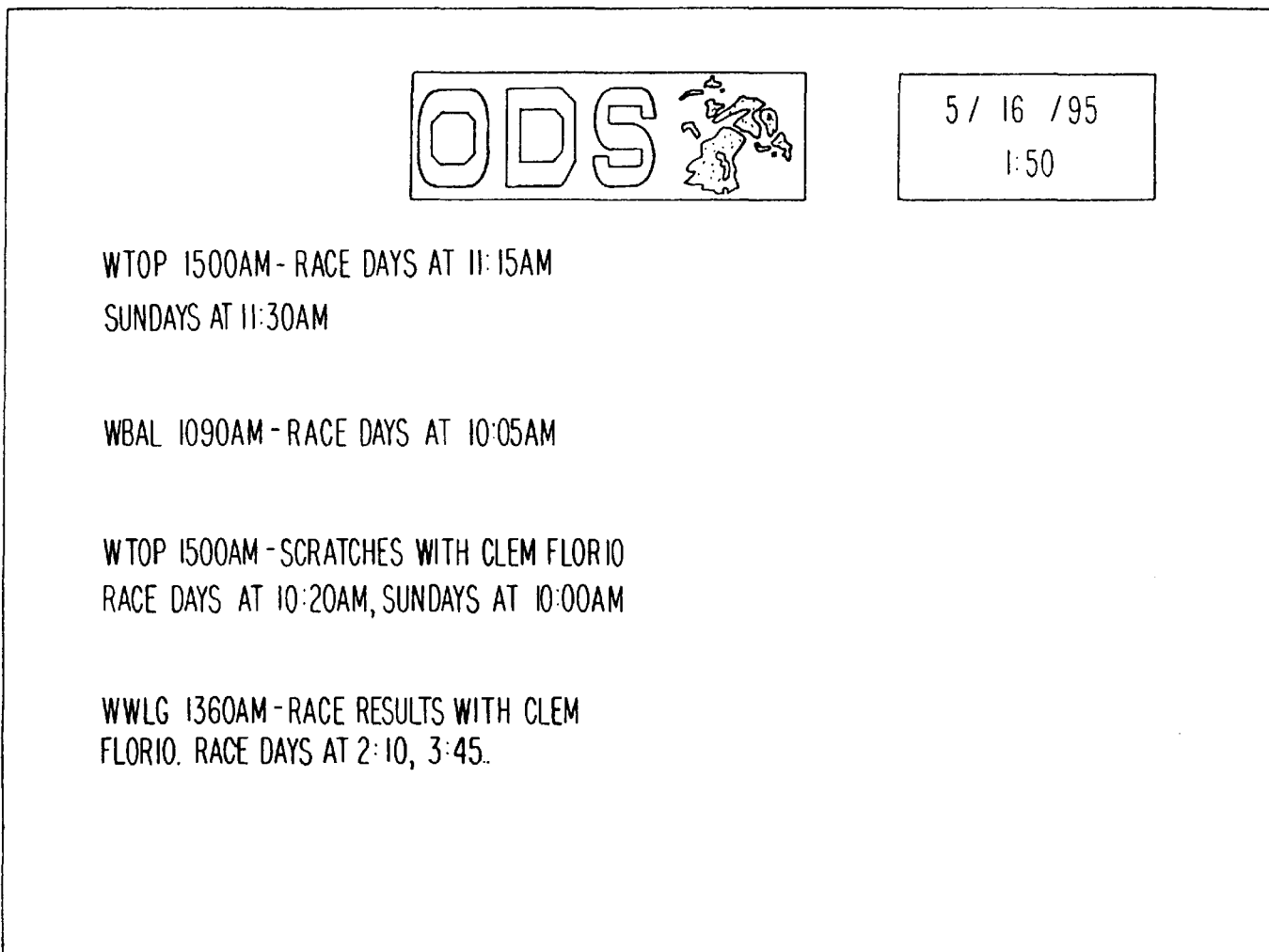
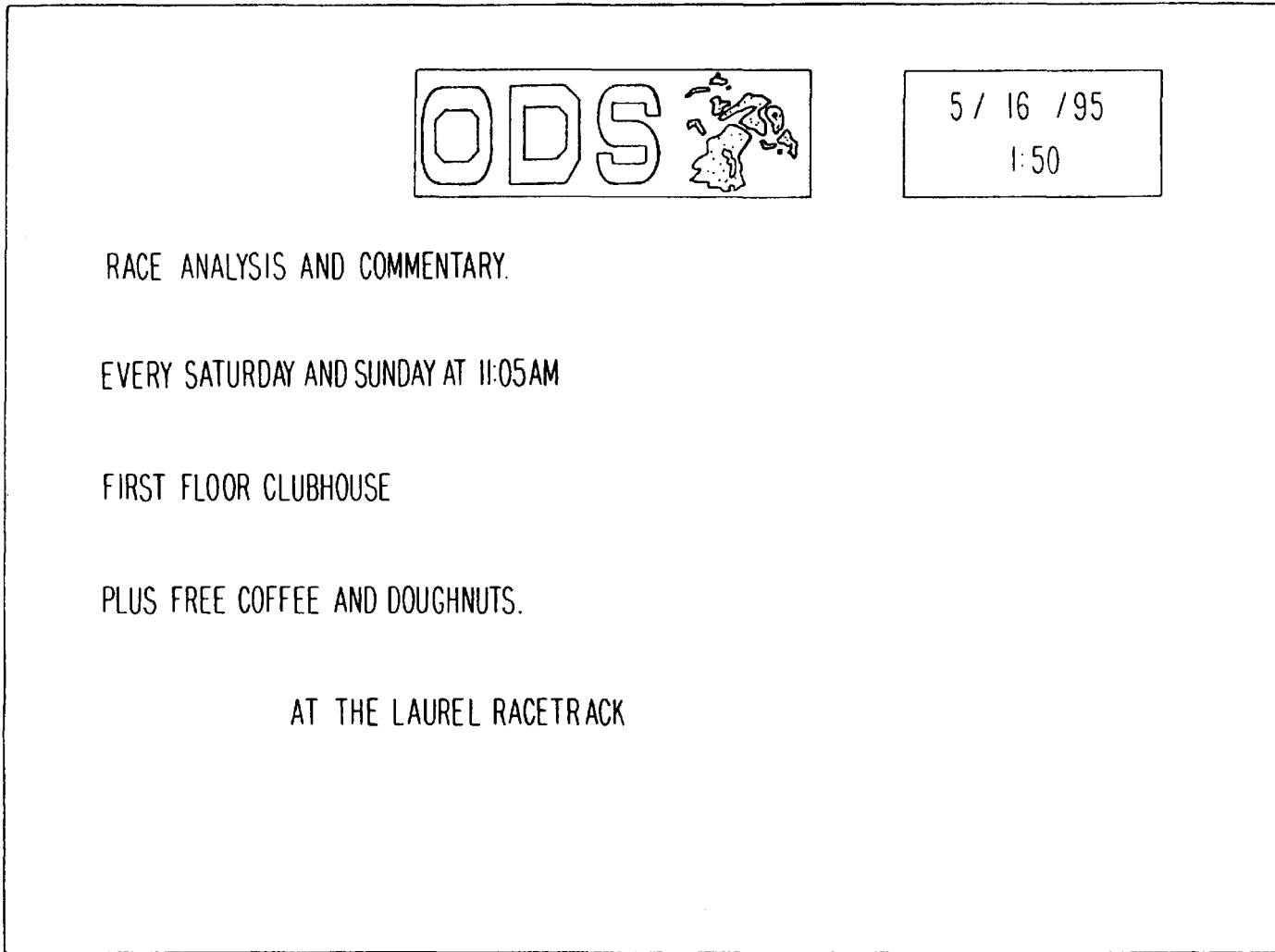
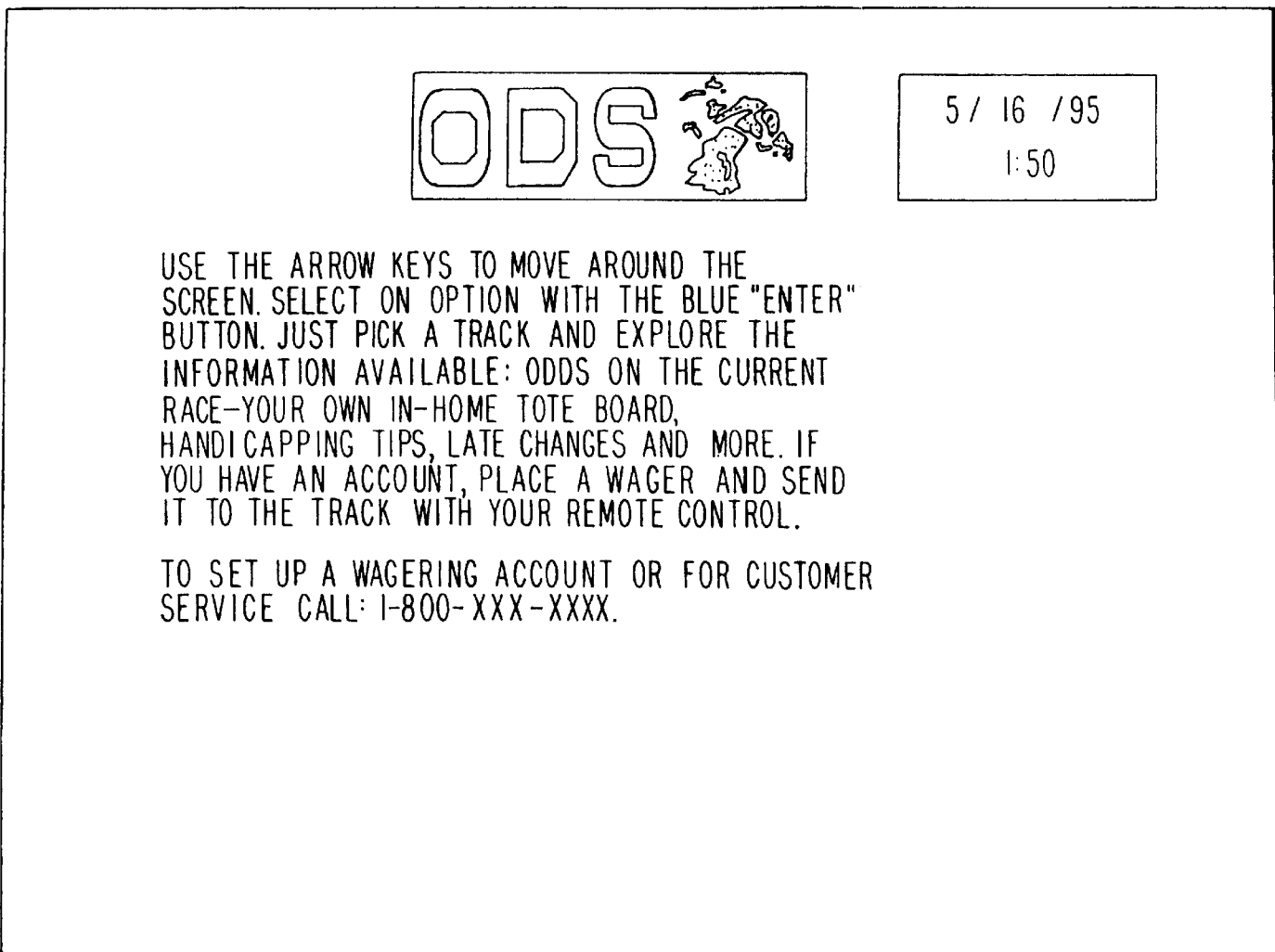
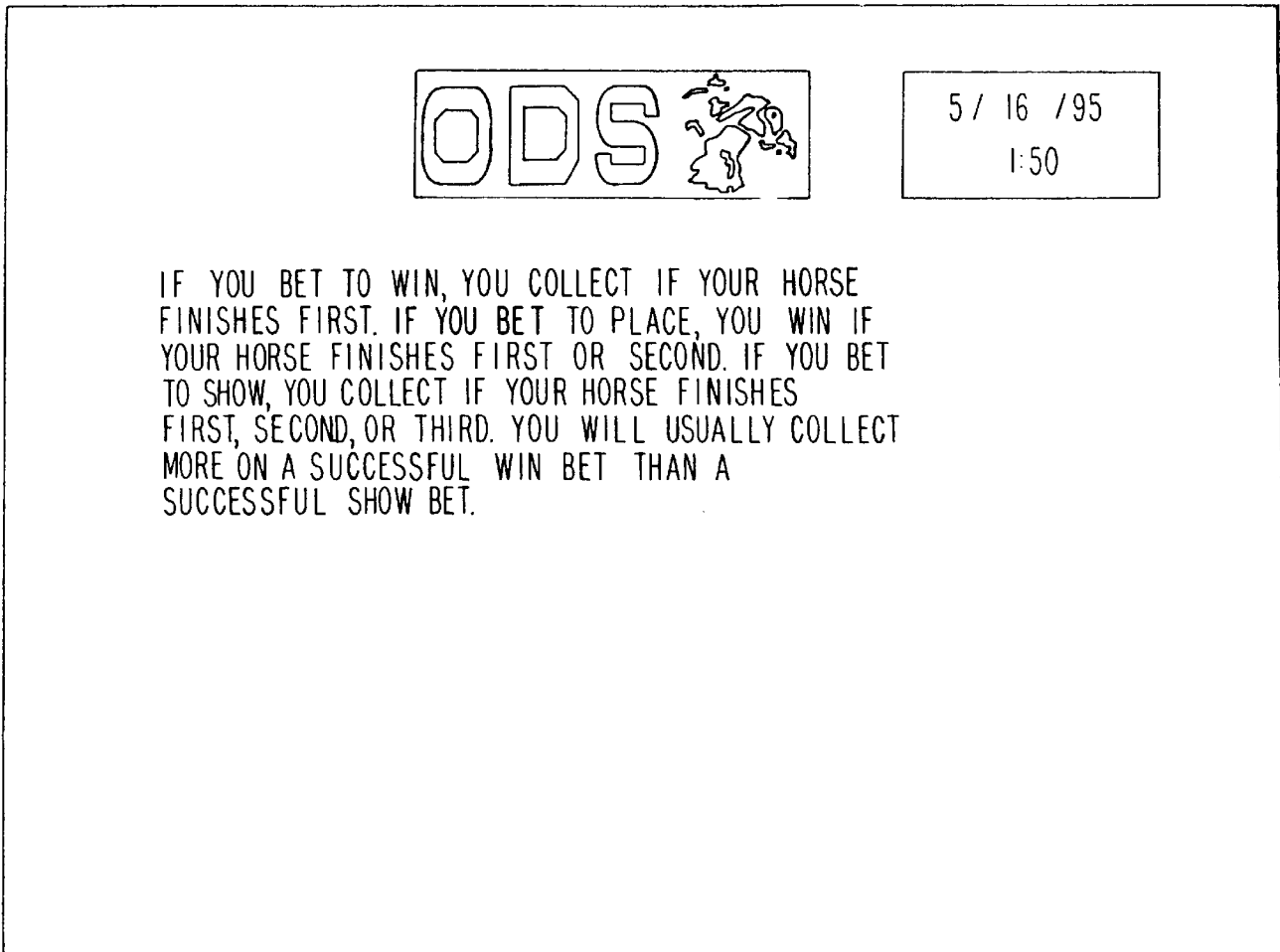


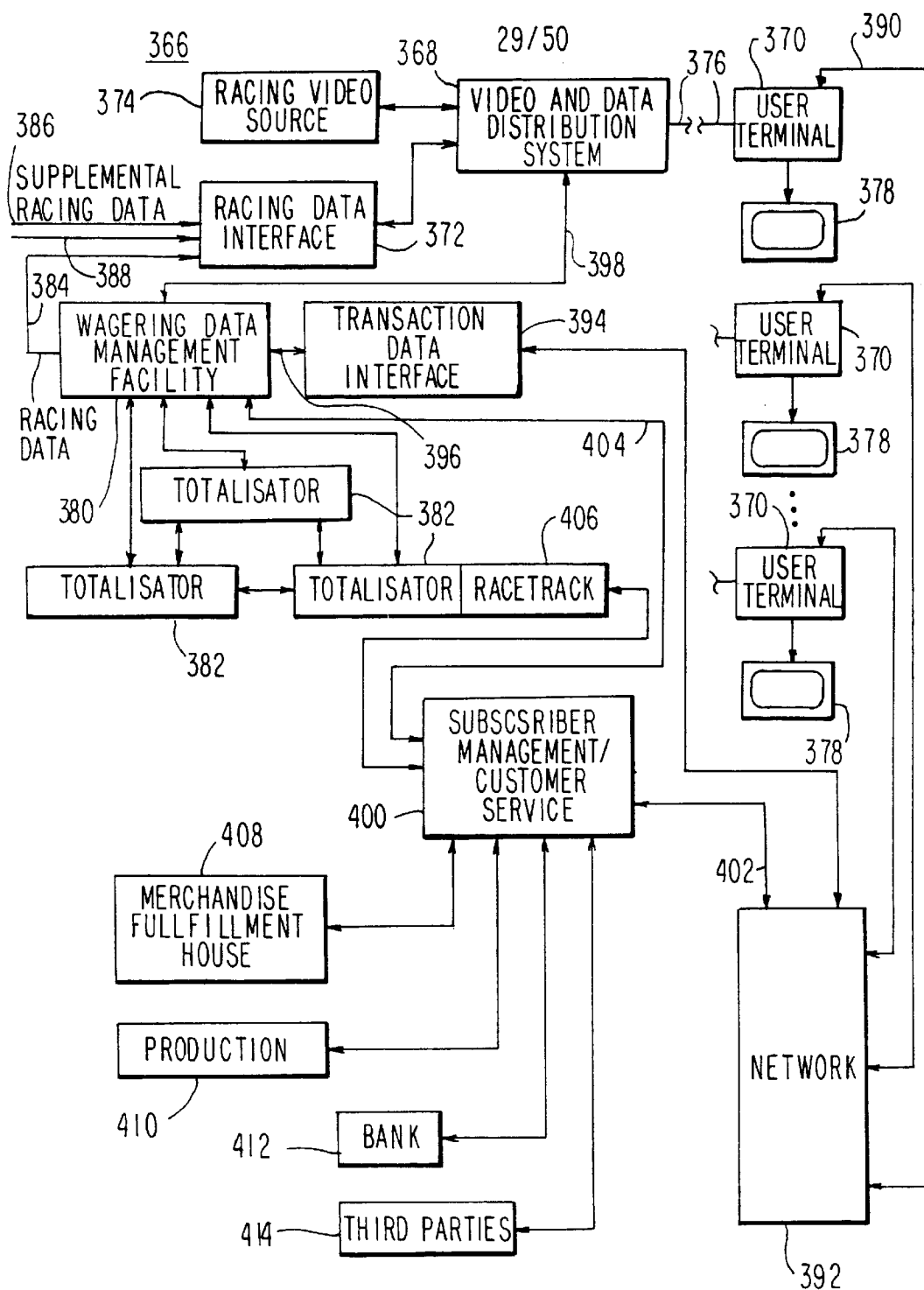
FIG. 25



*FIG. 26*

*FIG. 27*

**FIG. 28**



*FIG. 29*



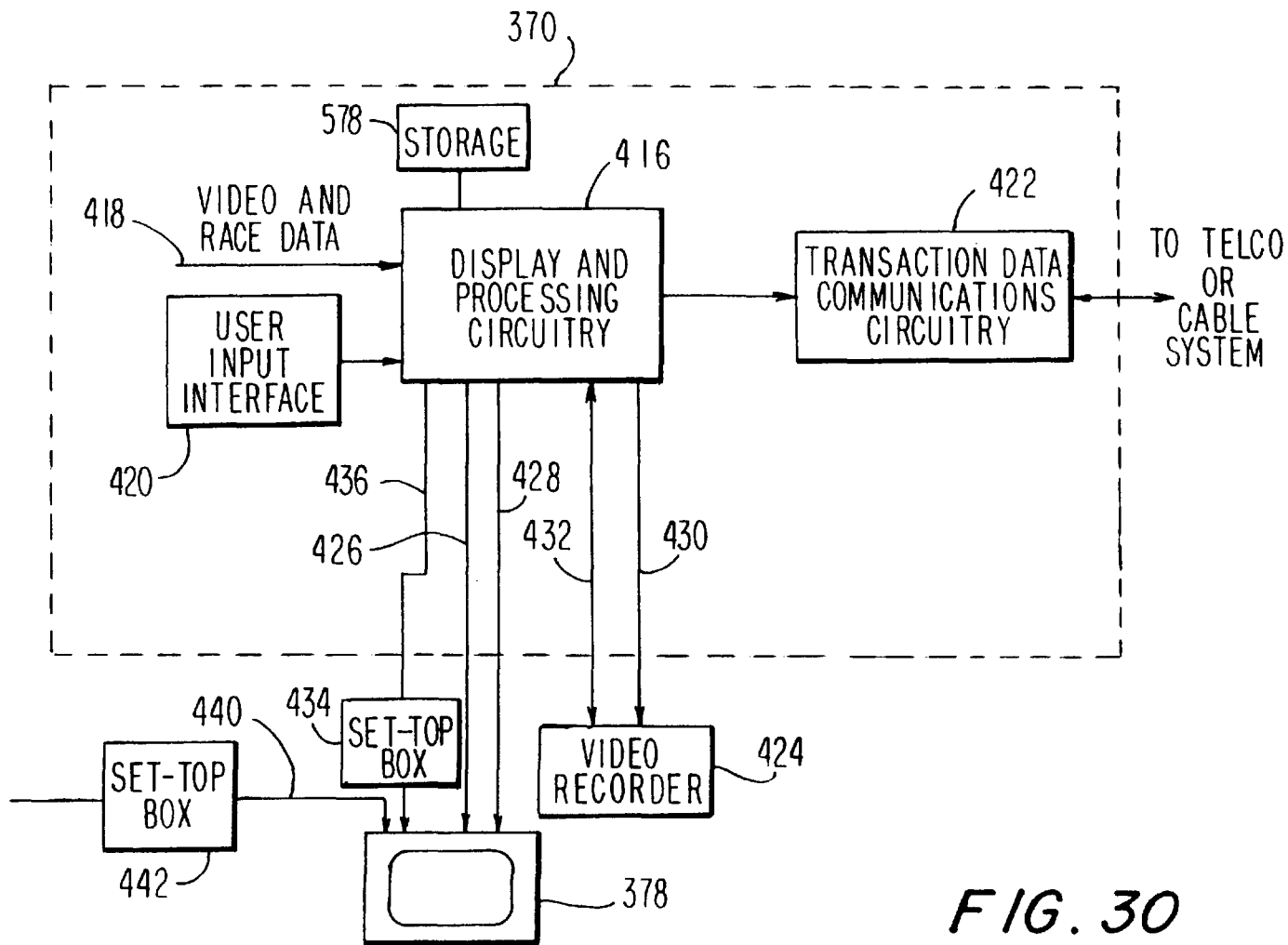
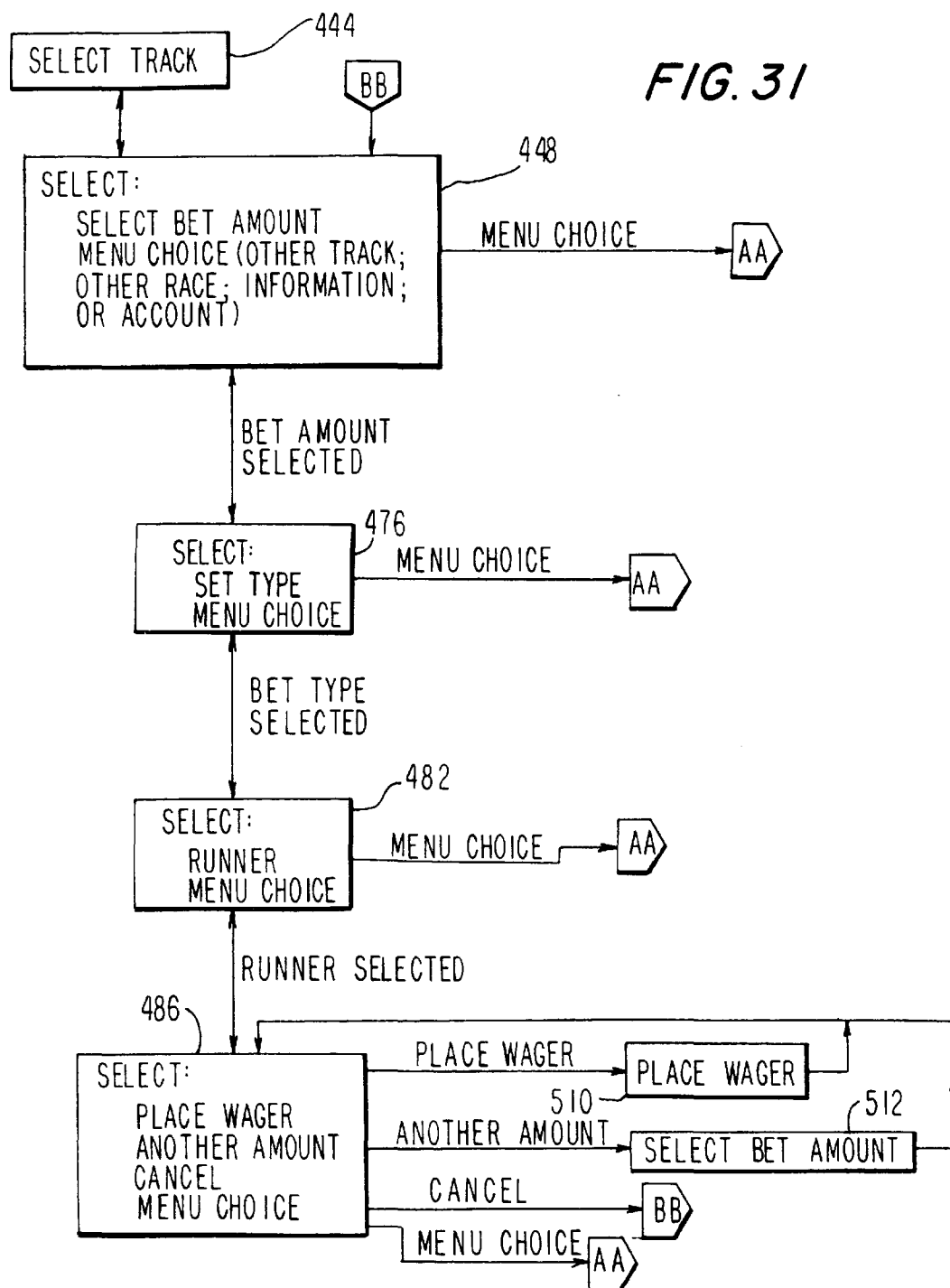


FIG. 30



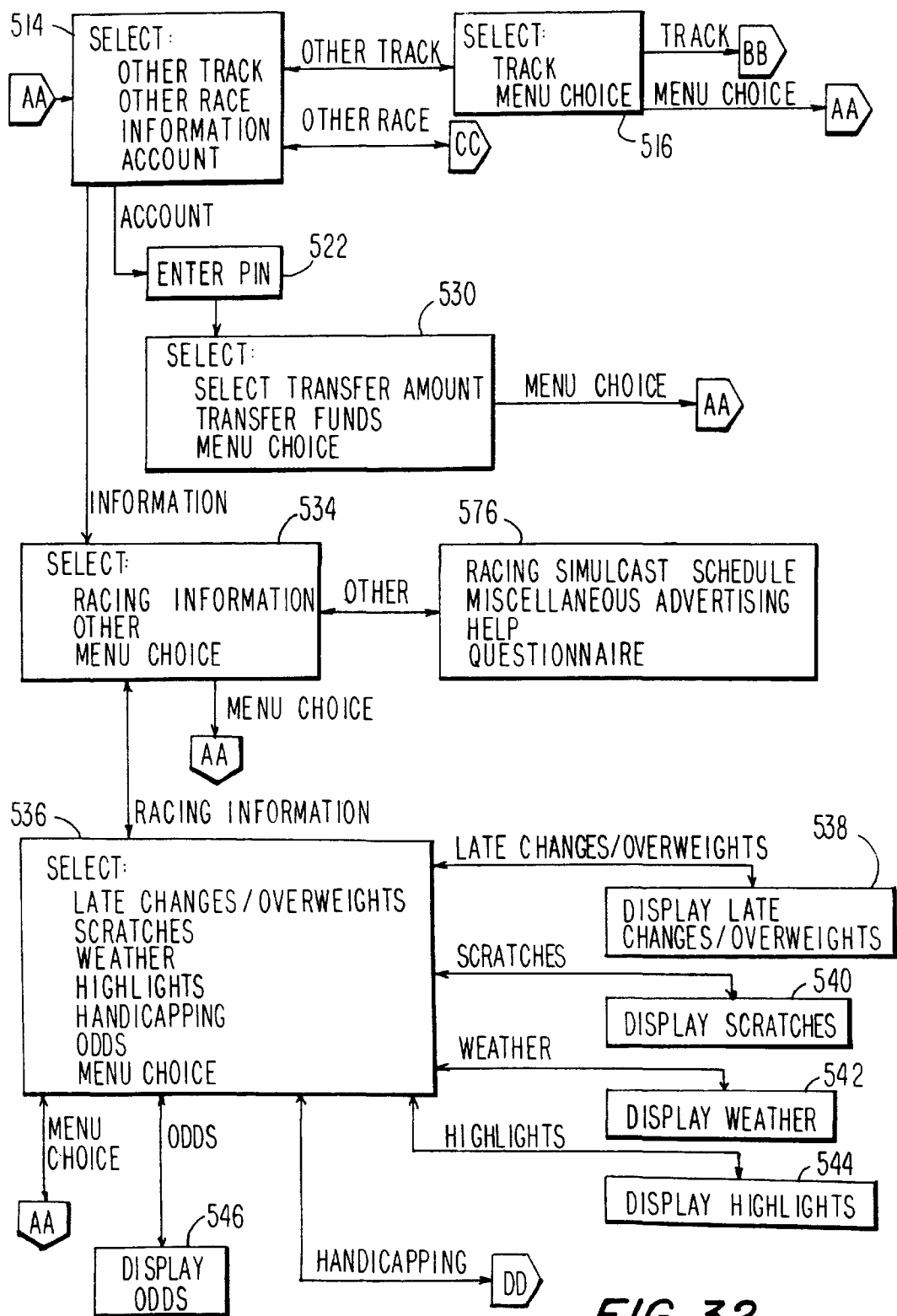
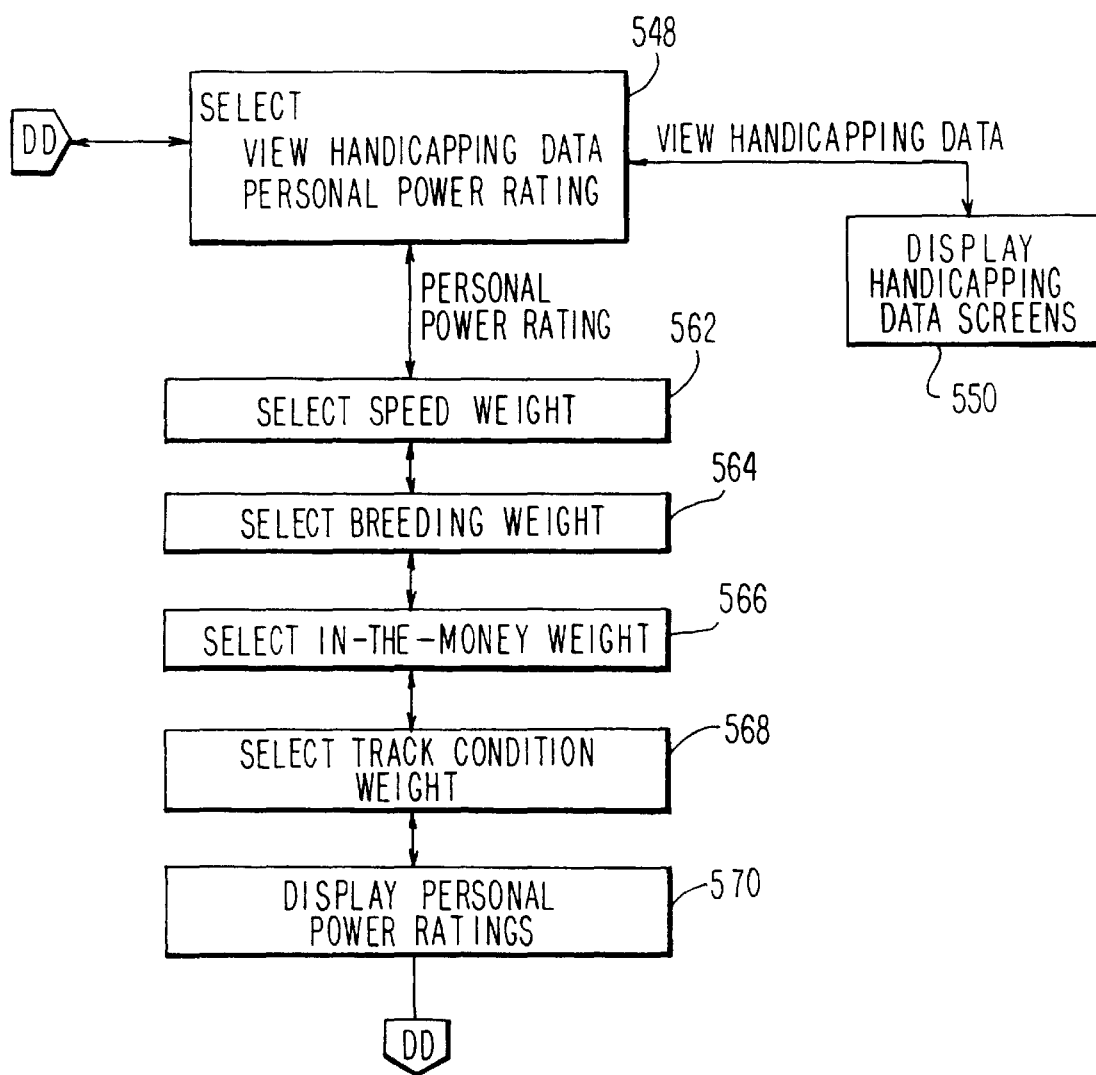
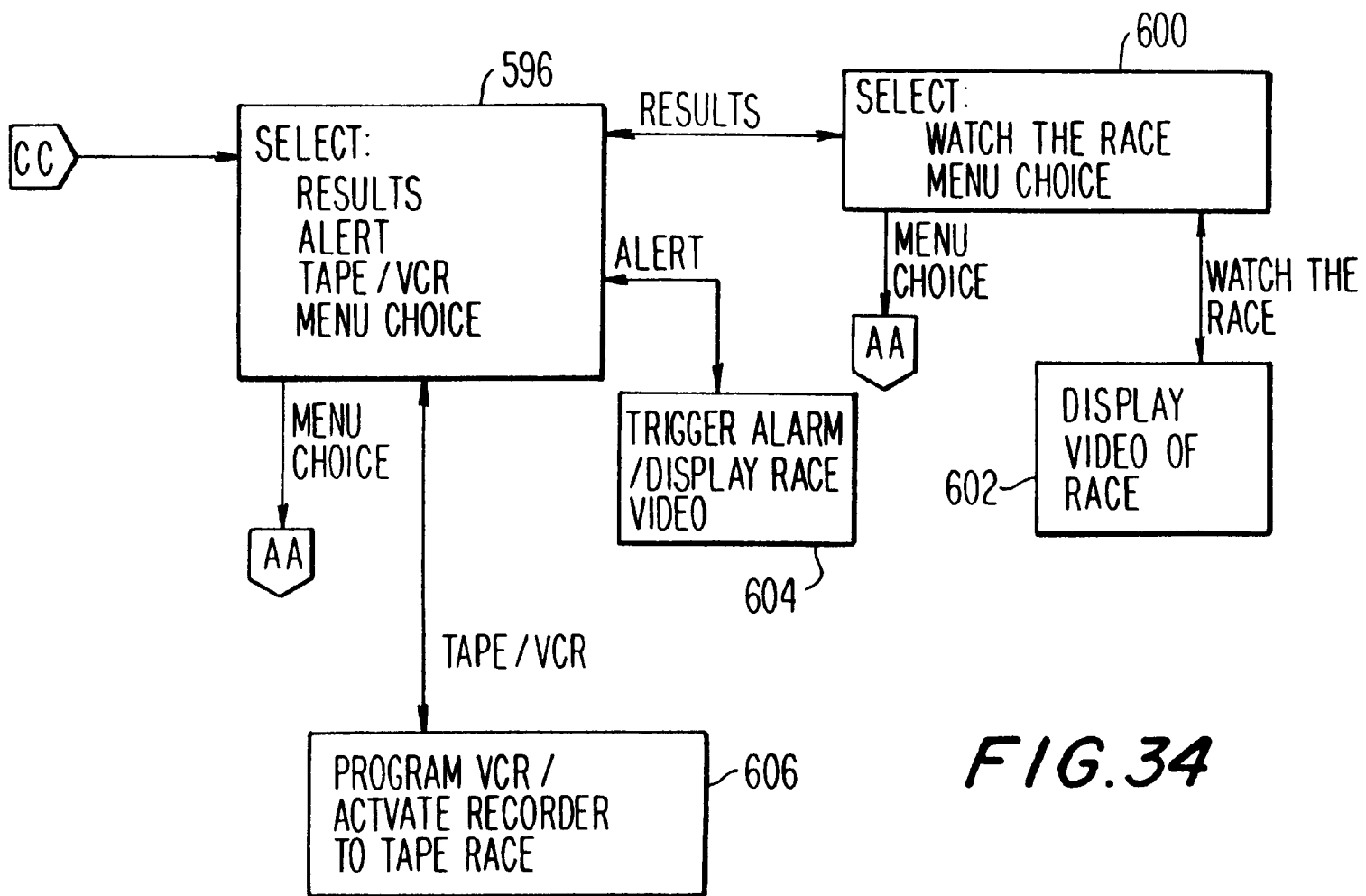


FIG. 32

*FIG. 33*



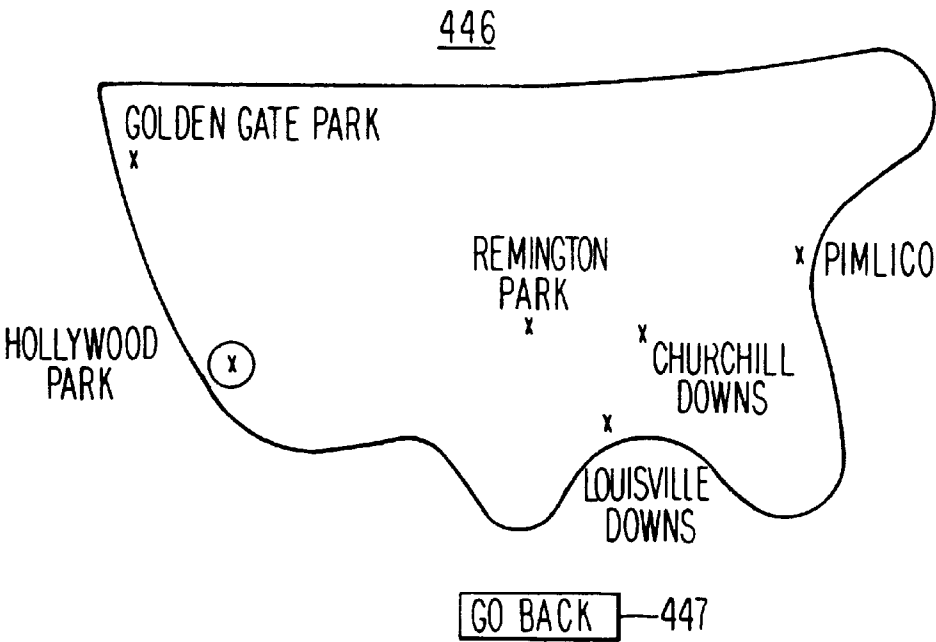


FIG. 35

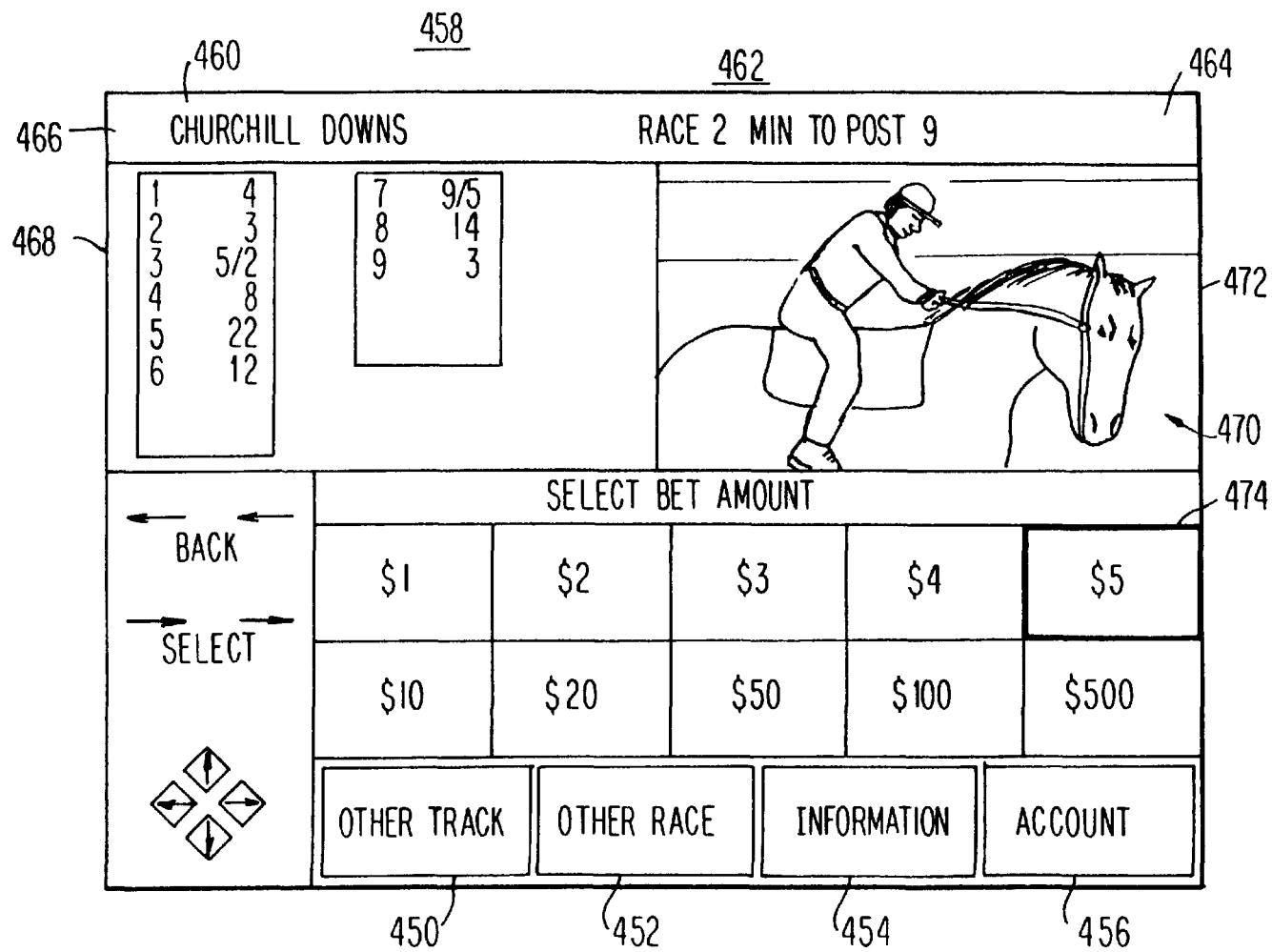


FIG. 36

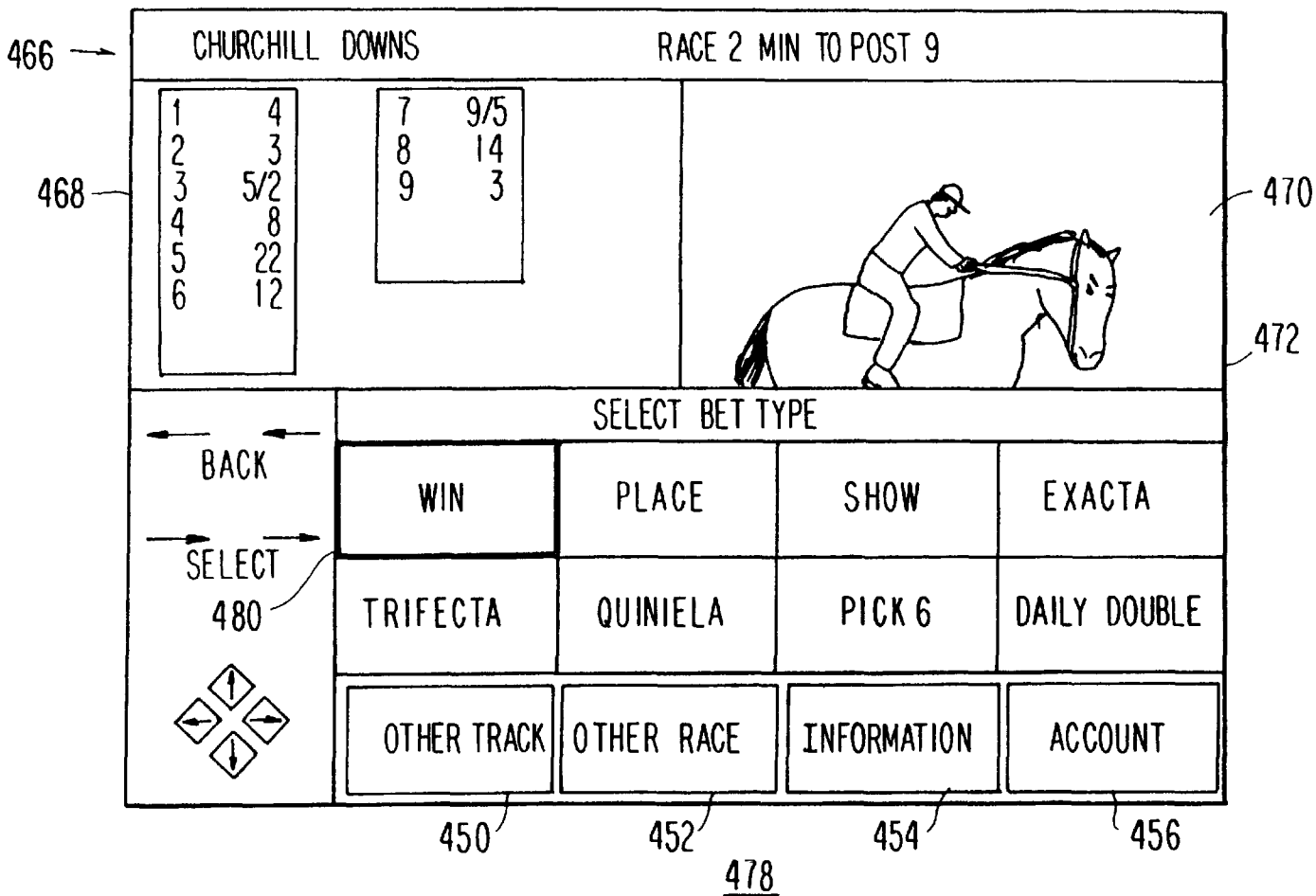

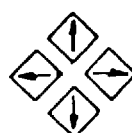


FIG. 37



CHURCHILL DOWNS			RACE 2 MIN TO POST 9														
<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> </div> <div> <div>4</div> <div>3</div> <div>5/2</div> <div>8</div> <div>22</div> <div>12</div> </div>	<div> <div>7</div> <div>8</div> <div>9</div> </div> <div> <div>9/5</div> <div>14</div> <div>3</div> </div>																
<div> <div>←</div> <div>BACK</div> <div>→</div> </div> <div> <div>→</div> <div>SELECT</div> <div>→</div> </div> <div>  </div>	<div>SELECT HORSES</div> <table border="1"> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>7</td> <td>8</td> <td>9</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					1	2	3	4	5	6	7	8	9			
1	2	3	4	5	6												
7	8	9															
OTHER TRACK		OTHER RACE		INFORMATION		ACCOUNT											

484

FIG. 38

CHURCHILL DOWNS		RACE 2 MIN TO POST 9		
<div> <div>1 4</div> <div>2 3</div> <div>3 5/2</div> <div>4 8</div> <div>5 22</div> <div>6 12</div> </div>	<div> <div>7 9/5</div> <div>8 14</div> <div>9 3</div> </div>			
496,				
<div>← BACK</div> <div>→ SELECT</div> <div> </div>	<div>WAGER 1 498,</div> <div>AMOUNT \$5</div> <div>BET 500 WIN</div> <div>HORSE (S) 502 8</div>		<div>PLACE WAGER 488</div> <div>ANOTHER AMOUNT 490</div> <div>CANCEL 492</div>	
	OTHER TRACK 450	OTHER RACE 452	INFORMATION 454	ACCOUNT 456

494

FIG. 39

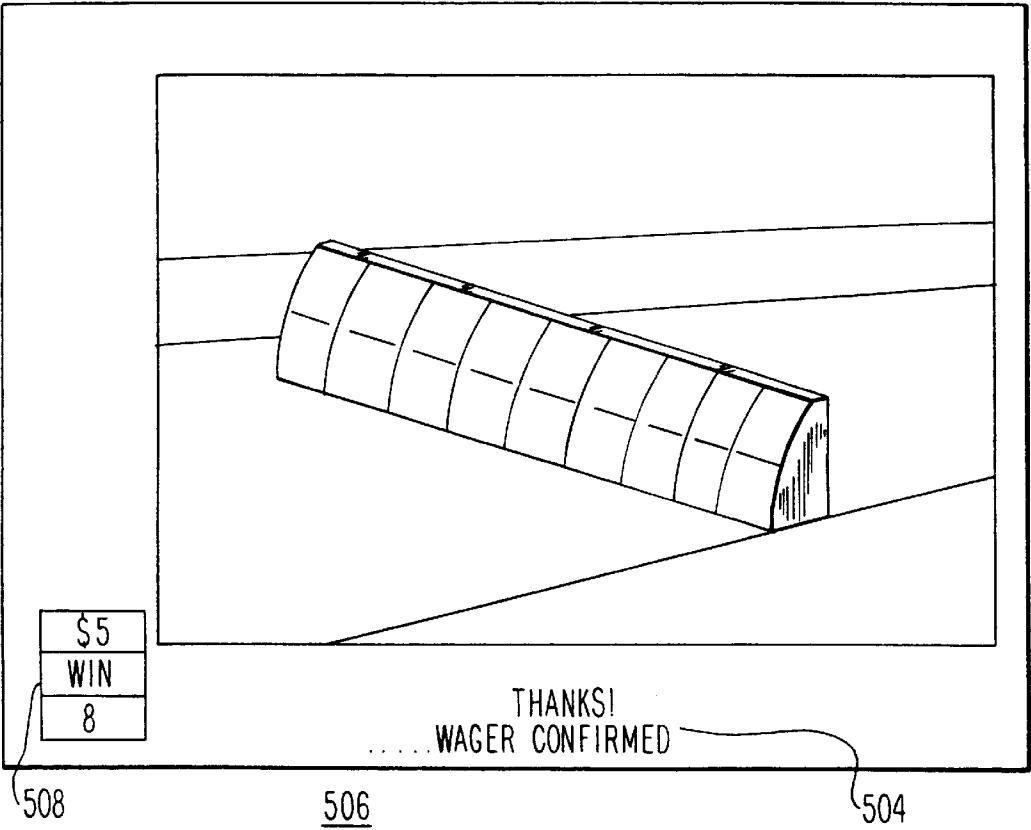




FIG. 40

CHURCHILL DOWNS		RACE 2 MIN TO POST 9																			
<table border="1"><tr><td>1</td><td>4</td></tr><tr><td>2</td><td>3</td></tr><tr><td>3</td><td>5/2</td></tr><tr><td>4</td><td>8</td></tr><tr><td>5</td><td>22</td></tr><tr><td>6</td><td>12</td></tr></table>	1	4	2	3	3	5/2	4	8	5	22	6	12	<table border="1"><tr><td>7</td><td>9/5</td></tr><tr><td>8</td><td>14</td></tr><tr><td>9</td><td>3</td></tr></table>	7	9/5	8	14	9	3		
1	4																				
2	3																				
3	5/2																				
4	8																				
5	22																				
6	12																				
7	9/5																				
8	14																				
9	3																				
<div>← BACK</div> <div>→ SELECT</div> <div></div>	SELECT TRACK																				
	REMINGTON PARK																				
	LAUREL																				
	OAKLAND																				
	BELMONT																				
	OTHER TRACK	OTHER RACE	INFORMATION	ACCOUNT																	

518**FIG. 41**

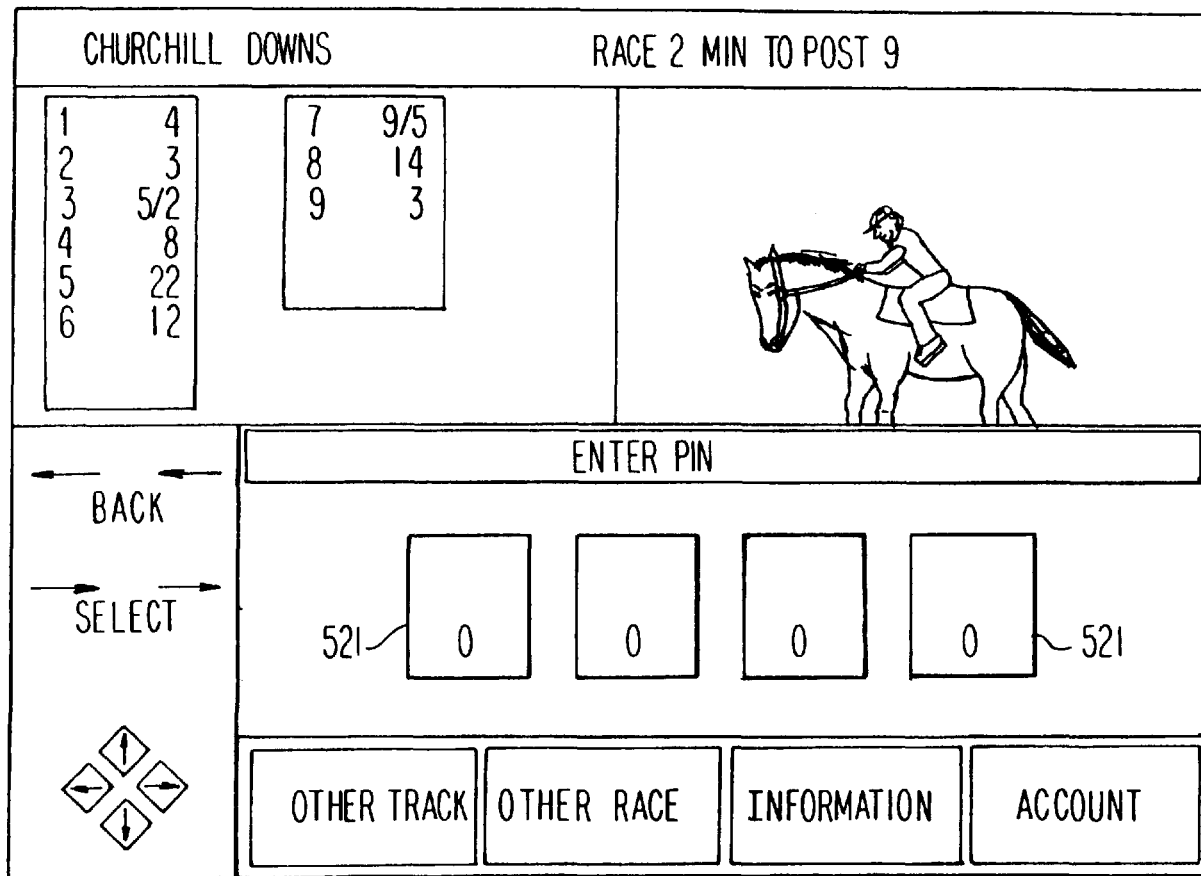
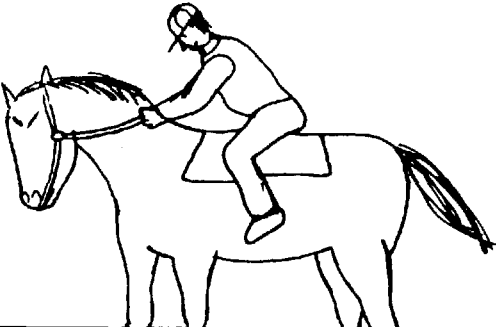
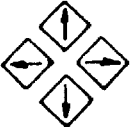


FIG. 42

CHURCHILL DOWNS		RACE 2 MIN TO POST 9			
<div> <div>1 4</div> <div>2 3</div> <div>3 5/2</div> <div>4 8</div> <div>5 22</div> <div>6 12</div> </div>		<div> <div>7 9/5</div> <div>8 14</div> <div>9 3</div> </div>			
<div>← BACK</div> <div>→ SELECT</div> <div> </div>	ODS ACCOUNT BALANCE <span>\$ 180.20</span> <span>526</span>				
	SELECT TRANSFER AMOUNT				
	\$10	\$20	\$50	\$100	\$500 <span>528</span>
		TRANSFER FUNDS <span>532</span>			
	OTHER TRACK	OTHER RACE	INFORMATION	ACCOUNT	

524

FIG. 43

CHURCHILL DOWNS		RACE 2 MIN TO POST 9	
<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> </div> <div> <div>4</div> <div>3</div> <div>5/2</div> <div>8</div> <div>22</div> <div>12</div> </div>	<div> <div>7</div> <div>8</div> <div>9</div> </div> <div> <div>9/5</div> <div>14</div> <div>3</div> </div>		
<div>← BACK</div> <div>SELECT →</div> <div>  </div>	SELECT INFORMATION CATEGORY		
	LATE CHANGES/OVERWEIGHTS		
	SCRATCHES		
	WEATHER		
	HANDICAPPING		
	OTHER TRACK	OTHER RACE	INFORMATION

538

FIG. 44

<u>RUNNER NO.</u>	<u>ODDS</u>	<u>ODDS PERCENTAGE</u>
1	20	5.0 %
2	8	12.5 %
3	9/2	22.2 %
4	7/2	28.6 %
5	9/5	55.6 %
6	3	33.3 %
7	6	16.7 %
8	5	20.0 %
9	10	10.0 %

*FIG. 45*



CHURCHILL DOWNS

RACE 2 MIN TO POST 9

14

23

35/2

48


522

612

79/5

814

93



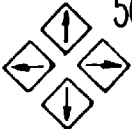
554

BACK

556

558

560



SELECT YOUR PERSONAL POWER RATING

SPEED

BREEDING

IN-THE-MONEY

TRACK CONDITION

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

OTHER TRACK

OTHER RACE











INFORMATION

ACCOUNT

552

FIG. 46

FIG. 47

ODS		PERSONAL POWER RATING RACE 3						
1								65
2								57
3								72
4								77
5								85
6								69
7								79
8								81
9								62

572

574

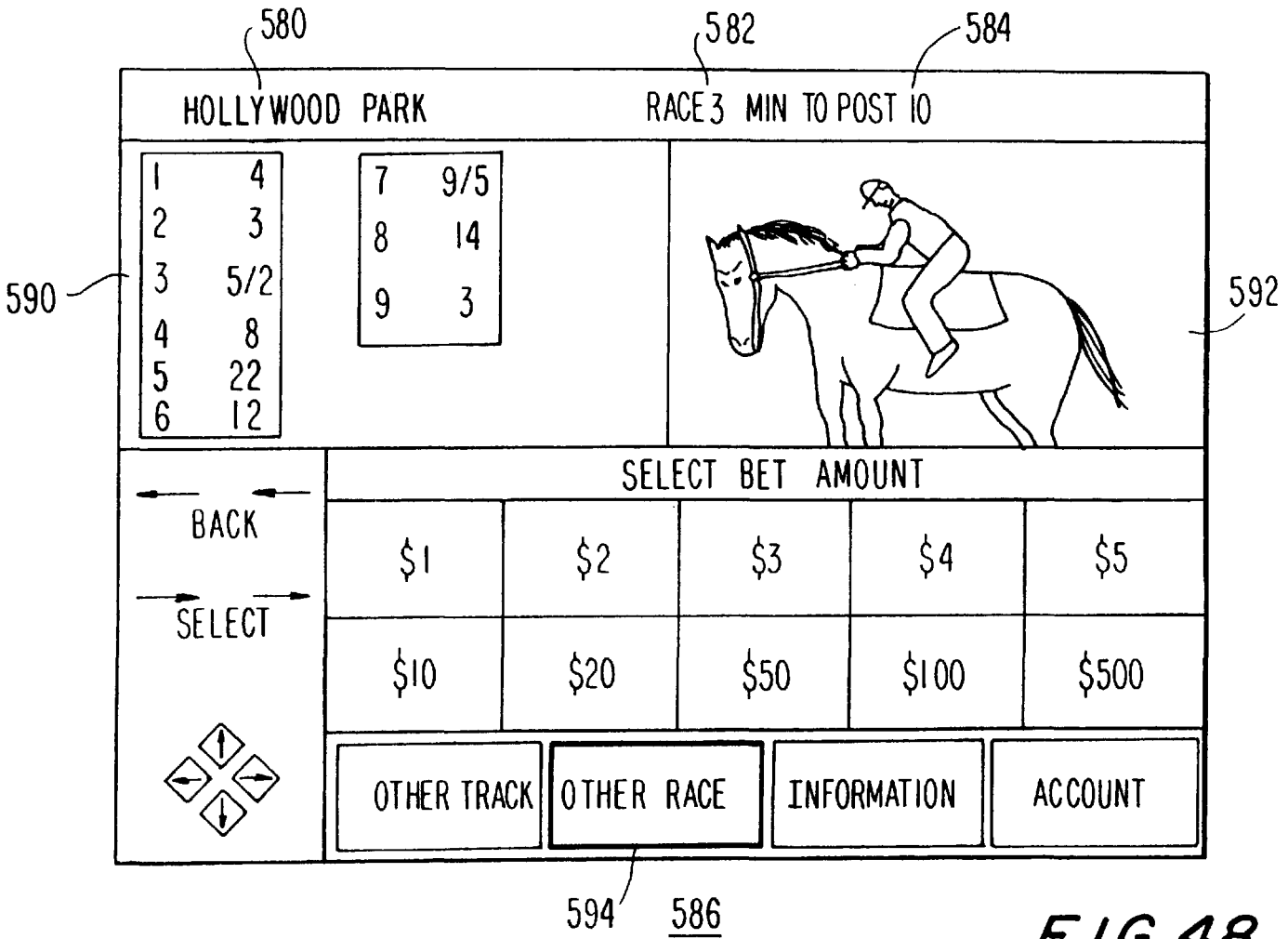


FIG. 48

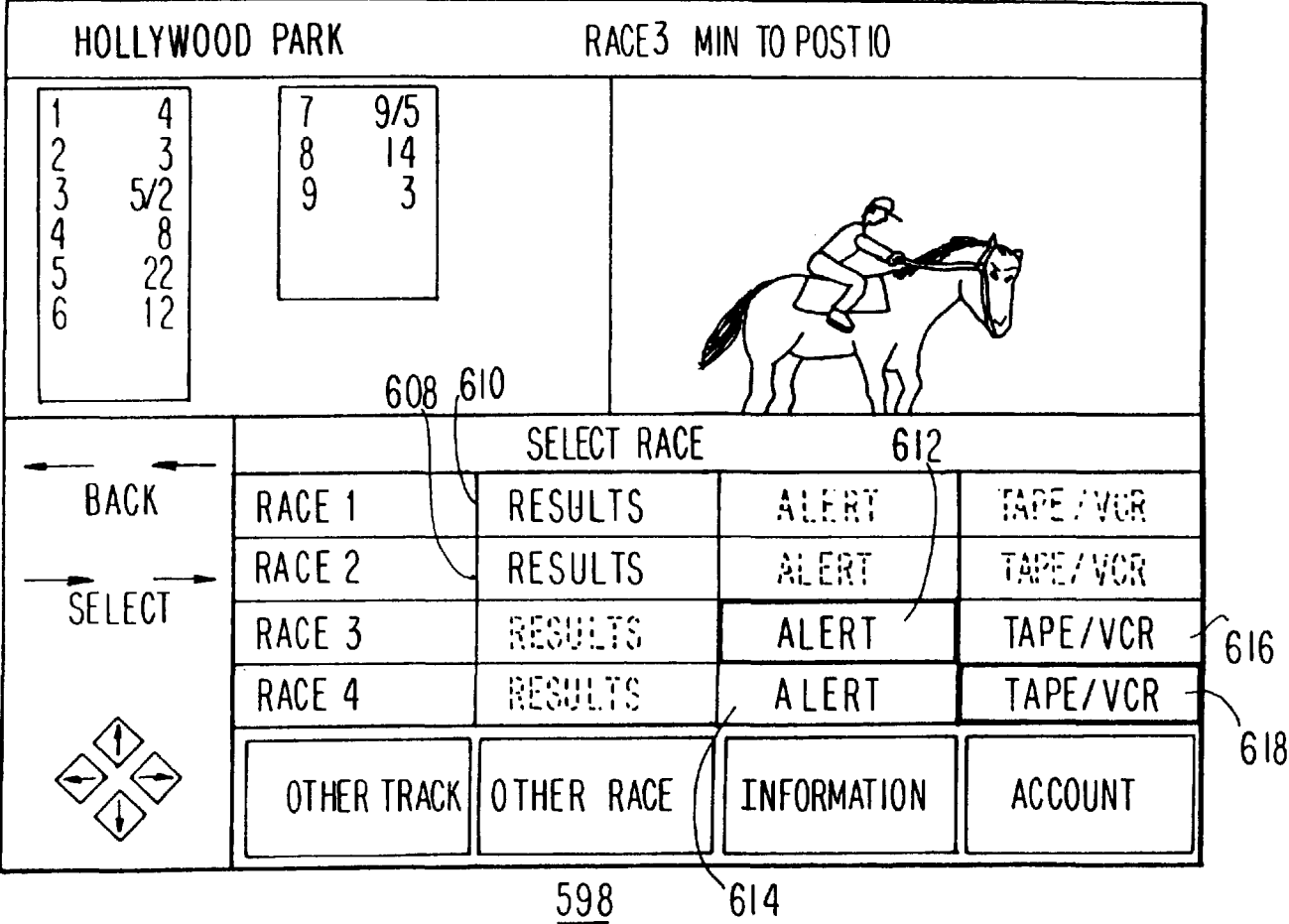


FIG. 49

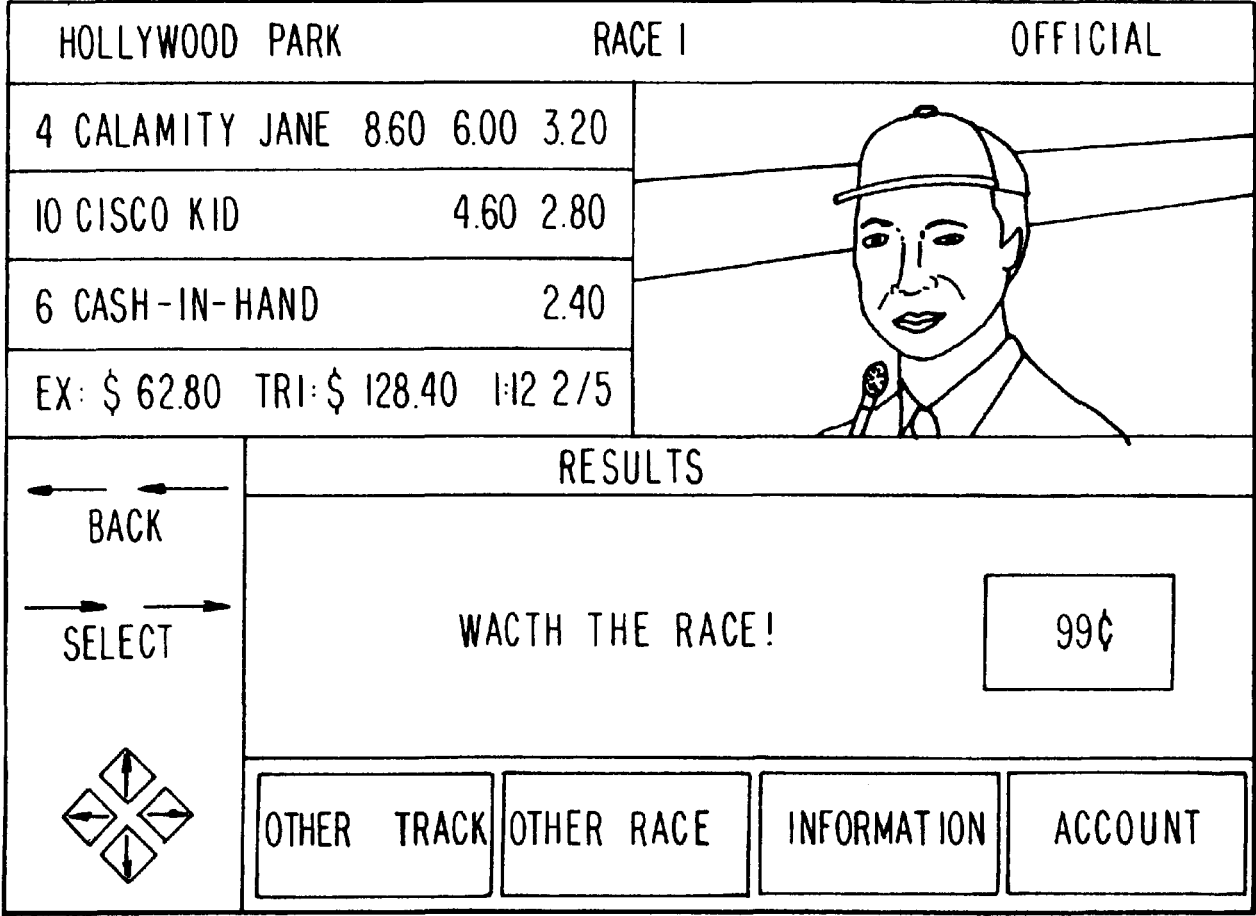


FIG. 50

## 1

**INTERACTIVE WAGERING SYSTEMS AND PROCESSES**

This is a continuation of application Ser. No. 09/138,953, filed Aug. 24, 1998, now U.S. Pat. No. 6,004,211, which is a continuation of patent application Ser. No. 08/526,007, filed Sep. 8, 1995, now U.S. Pat. No. 5,830,068.

**BACKGROUND OF THE INVENTION**

This invention relates to interactive wagering systems and particularly to interactive wagering systems for racetrack wagering. More particularly, this invention relates to off-track interactive wagering systems having user terminals for receiving racing videos and racing information via a medium other than conventional telephone lines and for displaying this information on a television monitor.

Wagering on sporting events such as horse, dog, and harness racing is a popular leisure activity. However, it is sometimes inconvenient to attend racing events in person. Not all racing fans have sufficient time to visit racetracks as often as they would like and some fans have difficulties in obtaining suitable transportation to the track. Thus, there is a need for wagering services for fans who cannot attend racing events in person.

Off-track betting establishments, which are generally more readily accessible than racetracks, have attempted to fill this need. However, a racing fan who desires to place a wager still faces the prospect of traveling to the off-track betting establishment.

Wagering via telephone is another option. A user of a telephone-based system typically sets up a telephone account against which wagers may be made. In order to place wagers, the user must interact with a computerized telephone ordering system by pressing appropriate buttons on a touch-tone telephone. This type of system is mainly used for placing wagers. Detailed racing information is typically obtained from other sources, such as printed racing programs.

Another approach for off-track wagering involves the use of dedicated devices that permit two-way serial modem communications with wagering equipment at a racetrack. These devices receive limited wagering information from the racetrack via telephone lines and provide it to a user on a liquid crystal display (LCD) screen. The user places a wager by making entries into the device which are then transmitted to the racetrack using the modem. Typical of this category of off-track wagering device are the Tiny TIM terminal of Autotote Systems, Inc., Newark, Del. and the terminal sold under the trademark "BetMate" of AmTote, Hunt Valley, Md.

Although it is possible to use terminals such as these in the home, doing so would monopolize the users' telephone line at certain times. And because the only data link with the racetrack using terminals such as the Tiny TIM or BetMate terminals is via telephone, it is not possible to receive racing videos with such terminals. In addition, the LCDs in these terminals make it difficult to display racing information in a way that may be easily viewed by the user. Because the Tiny TIM and BetMate terminals cannot be used with a television monitor, it is not possible for a user of such a terminal to display racing information on his home television set. Further, systems capable of interacting with off-track wagering terminals that use telephone lines to receive wagering information must provide a large number of simultaneous telephone connections to service each of the of the terminals. Because there is typically an extended connect time associated with each user, such systems are often unwieldy.

## 2

In addition, the racing information available through known off-track betting terminals is limited to a subset of the racing information provided by the racetracks. For example, presently available terminals may allow a user to view "win" odds (the amount wagered on a runner to win versus the amount wagered on competing runners to win). However, such terminals do not allow the user to view odds, pools, or predicted payoffs for wagers such as show, place, or more advanced wager types, such as exactas, trifectas, daily doubles, pick threes, pick fours etc.

Further, with presently known terminals, the user cannot receive or display any additional information, such as handicapping information, weather conditions, or information regarding which races at a particular track are available as video transmissions on a given day.

It would therefore be desirable to provide interactive wagering systems and processes that provide racing data to off-track wagering terminals via a medium other than conventional telephone lines.

It would also be desirable to provide interactive wagering systems and processes that provide racing data to off-track wagering terminals that display the racing data on a home television monitor.

It would also be desirable to provide wagering systems and processes that provide racing data and racing videos to off-track wagering terminals on which the racing data and racing videos are displayed.

It would also be desirable to be able to provide wagering systems and processes that provide an improved level of racing data to off-track wagering terminals.

**SUMMARY OF THE INVENTION**

It is therefore an object of this invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal receives racing data and video signals, displays the racing data on a monitor, and transmits wagers to a wagering facility.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal receives racing data from a cable headend or other transmission facility.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal receives racing data within the bandwidth of a television channel.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal provides a user with menu options allowing selection of a racetrack, a set of races within a racetrack (e.g., a morning or afternoon "performance"), a race, a wager type, wager amount, and runners.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal provides racing odds, pools, predicted and actual payoffs, and handicapping information.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal provides odds for wager types other than win odds, such as the odds for shows, places, exactas, trifectas, daily doubles, etc.

It is also an object of this invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal receives racing data from a racing data interface and racing videos from a source of

racing videos and simultaneously displays the racing data and video signals on a monitor.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal presents a racing simulcast schedule on a monitor.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal allows a user to calculate a personal power rating based on the selection by the user of personal power rating "weights" for various handicapping categories. The user terminal calculates and displays a corresponding set of personal power ratings for a number of runners.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal displays race results in the form of prerecorded race videos supplied to a user on demand.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal alerts a user that a race is about to be run by triggering an alarm.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal sets a video recorder to record one or more preselected races.

It is also an object of the invention to provide interactive wagering systems and related processes for off-track wagering in which a user terminal transmits transfer instructions that initiate a transfer of funds from a bank account at a bank facility to a wagering account at a wagering facility or allows the user to draw directly from his bank account when placing wagers.

The present invention involves off-track wagering systems and related processes. Racing data such as the names and post positions of the runners that are in various races and the current odds and payoffs for those races are provided by a wagering facility (typically based on a system known as a "totalisator" located at a racetrack). Supplemental racing data such as the weather conditions at various racetracks may be provided by additional sources. A computer-based data concentrator processes the racing data from the totalisator and any additional sources and provides the racing data to a television network—typically at a main distribution node for a cable television network known as the "headend" facility. The cable headend provides the racing data to a number of user terminals. Typically, the cable headend provides the racing data with video signals on at least one television channel. Suitable approaches involve providing the racing data on a sideband or on a separate television channel.

If desired, the racing data may be distributed via satellite. With this approach, the racing data are provided within an available portion of the bandwidth of the television channel either in an available portion of the bandwidth of an analog television channel or as a portion of a digital television channel. Further, the racing data may be provided on a separate satellite channel or may be broadcast using a radio or television broadcast system.

Each user terminal receives the video signals and the racing data and separates out the racing data. Racing data are displayed on a monitor (preferably a conventional television monitor) using display and control circuitry. The racing data that may be displayed include odds, pools, and predicted and actual payoffs for selected wager types, races, and runners. The odds, pools, and payoffs for sophisticated wager types,

such as exactas, trifectas, and daily doubles may be provided due to the relatively high bandwidth pathway that is made available between the data concentrator and each user terminal.

Another aspect of the invention relates to simultaneously displaying racing videos and racing data on a monitor. Racing data are provided from totalisators and from third party sources. A racing data interface processes the racing data and provides the processed data to a video and data distribution system. The racing video source provides racing videos to the video and data distribution system from a source of racing videos, such as live video feeds from racetracks.

The video and data distribution system may involve satellite distribution or distribution via a cable headend facility. Regardless of the medium over which the racing data and racing videos are distributed, the racing data are preferably provided with the racing videos on at least one television channel. One suitable approach for distribution of the racing data uses a frequency modulated carrier on a sideband of a television signal.

The racing data and racing videos are distributed to a number of user terminals. Preferably, the user terminals display the racing data and racing videos on a conventional television monitor.

The user can review the racing data at the user terminal in a variety of formats. For example, odds, pools, predicted payoffs, and actual payoffs can be displayed. Handicapping information can also be displayed. And additional information, such as news, weather, advertising, help, late changes/overweights, and scratches, etc. can be displayed. Based on this information, a user can select a desired racetrack or performance, which is a set of races at a particular track (i.e., a morning performance or afternoon performance). The user can also select a race, a wager type, wager amount, and one or more runners.

When a user has entered all of the data necessary to place a wager, the corresponding wager data are transmitted to a wagering data management system that preferably includes a totalisator for maintaining the user's wagering account. The wagering data management system adjusts the user's account based on the user's wagers. Typically, the user's account is debited when a wager is placed. If, following a race, a user's wager is successful, the wagering data management system credits the user's account accordingly.

Occasionally, the user may wish to transfer funds from a bank account into the wagering account at the wagering data management system. To do so, the user enters the amount to transfer and a personal identification code into the user terminal. This information is transmitted to an appropriate bank facility, which, after verifying the user's account information, authorizes the transfer of the selected amount of funds from the bank account into the wagering account. Alternatively, the user may place wagers directly against his regular bank account. A security measure that may be used, either in addition to requiring the personal identification code or as an alternative to the personal identification code is to use a physical key or access device, such as a smart card, magnetic stripe card, or electronic hardware key.

When the user desires to view the results of races that have been run, the user can place an order for a racing video of that race. The user terminal transmits the ordering information to, e.g., the video and data distribution center, which plays back the ordered racing video for the desired race. The user can also instruct the user terminal to trigger an alarm when an upcoming race is about to be run. Either an audible

tone or a video message may be used to alert the user of the racing video for the upcoming race. If the user wishes to record a racing video, then the user enters the necessary race information into the user terminal. The user terminal either programs a video recorder to record the desired race at a predetermined time, or directly actuates a video recorder to record the racing video when the appropriate time arrives.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and advantages of the present invention will be apparent upon consideration of the following detailed description, taken in conjunction with the accompanying drawings, in which like reference characters refer to like parts throughout, and in which:

FIG. 1 is a block diagram of a wagering system constructed in accordance with the present invention;

FIG. 2 is a block diagram of a user terminal suitable for use with the wagering system of FIG. 1;

FIGS. 3–7 are logic flow diagrams illustrating the operation of the wagering system of FIG. 1;

FIGS. 8–28 are illustrative option menus and display screens suitable for use with the illustrative wagering system of FIG. 1;

FIG. 29 is a block diagram of an alternative embodiment of a wagering system in accordance with the present invention;

FIG. 30 is a block diagram of a user terminal suitable for use with the wagering system of FIG. 29;

FIGS. 31–34 are logic flow diagrams illustrating the operation of the wagering system of FIG. 29; and

FIGS. 35–50 are illustrative option menus and display screens suitable for use with the illustrative wagering system of FIG. 29.

#### DETAILED DESCRIPTION OF THE INVENTION

A schematic block diagram of a wagering system 100 constructed in accordance with the present invention is shown in FIG. 1. Wagering system 100 uses wagering machines known as “totalisators,” such as totalisators 102, 104, 106, and 108, to generate wagering odds in realtime based on the wagers placed on racing events at various racetracks. Totalisators are available from companies such as Amtote International, Inc. of Hunt Valley, Md., Autotote Limited of Newark, Del., and United Tote Company of Shepherd, Mont. Typically, each racetrack has an installed totalisator for handling the wagering odds and information at that track. Thus, totalisators 102, 104, 106, and 108 are generally each located at a separate racetrack. Totalisators are also capable of communicating data between one another.

For example, as shown in FIG. 1, totalisators 102, 104, 106, and 108 are interconnected by data lines 110. Totalisators 102–108 communicate between one another using data lines 110 and a communication protocol known as the Intertote Track System Protocol (ITSP). The communication between totalisators 102–108 allows totalisators 102–108 to share pools, thereby allowing racing fans that interact with one totalisator to view odds and place wagers on races at other racetracks.

The odds and other racing data from each of the totalisators connected to totalisator 102 are provided to data concentrator 112. Data concentrator 112 is a computer-based system that receives racing data from totalisator 102 and provides the data to a suitable data distribution system for

providing the data to racing fans in their homes. Typical racing data received from totalisator 102 include the current race at each track, which races and tracks are open for wagering, the post times of each race, and the number of races associated with each track. Racing data from totalisator 102 also include the win, place and show “pool” totals for each runner (e.g., a horse) and the exacta, trifecta, and quinella payoff predictions and pool totals for every runner combination. Odds are provided for all races that have not started (i.e., those races for which wagering has not been closed). Totalisator 102 also provides the number of minutes remaining until post time for the current race at each track to data concentrator 112.

Other racing data provided by totalisator 102 to data concentrator 112 include race results, such as the order-of-finish list for at least the first three positions and payoff values versus a standard wager amount for win, place, and show, for each associated combination of the finish list. Also provided are payoff values for the winning complex wager types, including exacta, trifecta, quinella, pick-n (where n is the number of races involved in the pick-n wager), and daily double. The payoff values may also be accompanied by a synopsis of the associated finish list.

Further racing data provided by totalisator 102 to data concentrator 112 include the number of runners in each race, the valid wager amounts accepted by totalisators 102–108, and valid wager types accepted by totalisators 102–108. Racing data provided by totalisator 102 also include a scratch list of those runners entered but removed from a race.

Preferably, additional “program information” (racing information typically provided in printed programs) may be provided from totalisator 102 to data concentrator 112. Such program information may include early odds, early scratches, race descriptions (including the distance of each race and the race surface—grass, dirt, artificial turf, etc.), allowed class ratings (based on a fixed ratio of external criteria), purse value (payoff to winning runner), allowed age range of runners, and the allowed number of wins and starts for each runner.

In addition to receiving racing data from totalisator 102 at line 114, data concentrator 112 preferably receives supplemental racing data from third party information sources, such as Axcis Pocket Information Network, Inc. of Santa Clara, Calif., at input 116. Typical supplemental racing data include the post times of each race, jockey names, runner names, and the number of races associated with each track. Weather information is also available from third party data sources. For example, the weather for the city and state in which each racetrack is located can be obtained.

More detailed weather information, including track conditions, temperature, humidity, dewpoint, and a short status description of the current weather (sunny, raining, foggy, etc.) may also be provided. Some racing data, such as the data describing regional weather conditions may be widely available in an electronic format. Other racing data may need to be entered manually, via input 118.

Data concentrator 112 processes the racing data received at inputs 114, 116, and 118 and assembles the data into a suitable data format for transmission to distribution facility 120, which is preferably a cable headend. Transmission of the racing data between data concentrator 112 and distribution facility 120 may be via cable, satellite, or any suitable transmission medium with an adequate bandwidth to supply a large quantity of racing data in realtime.

Typically, large metropolitan cable television networks have at least several headend facilities. Television signals



are provided to home viewers from the headends, generally using fiber optic cable and coaxial cable, collectively referred to here as "cable." Television distribution to the home is also possible in a system in which headends or similar facilities capable of data transmission deliver television signals to user terminals 122 via satellite.

In wagering system 100, racing data are provided from distribution facility 120 to user terminals 122 via a distribution network 124, which uses either cable wired directly to the home, a system of home satellite receivers, or radio or television broadcasting equipment. An advantage of using cable, satellites, or broadcast systems in distribution network 124 is that video information along with large quantities of racing data may be supplied to a large array of user terminals 122 more economically than with other systems. Although racing data is preferably supplied to the user terminals using the same medium used for video transmissions, this need not be the case. For example, racing data could be broadcast over-the-air while video information is received by the user via cable or satellite. If desired, videos of races can be provided along with the racing data. Using this type of system, the user can receive the racing data continuously, without forcing the wagering system 100 to monopolize the user's telephone line.

User terminal 122, which is preferably microprocessor-based, supports software capable of coordinating the receipt and display of racing data and the placing of wagers electronically. Preferably, user terminals 122 generate easy-to-read menus on displays 126, which may be, for example, conventional television sets. User terminal 122 executes instructions that enable terminal 122 to process the racing data received from distribution facility 120 and display the data on display 126 in a suitable format. The user can interact with user terminal 122 using any suitable user interface, such as a keyboard, pointing device, or voice-actuated controller. Preferably, the user interacts with user terminal 122 using an infrared or other suitable type of wireless remote control.

In order to place wagers, a user typically establishes an account associated with a totalisator (e.g., at a particular racetrack). The user's account balance and other wagering transactional information is stored in the totalisator. Preferably, user terminal 122 includes suitable communication circuitry to establish a communications link with totalisator 102. One suitable method of establishing such a link is to use modem communications between user terminal 122 and totalisator 102. For example, telephone network 128 and telephone interface 130 support two-way communications between user terminal 122 and totalisator 102. If a user desires to place a wager, the data necessary to execute the transaction are transmitted via network 128. Telephone interface 130 processes the wager data so that the data may be received by totalisator 102. For example, if many incoming signals are received at once, telephone interface 130 receives them in parallel. Typically, once the user places a wager the user's account at totalisator 102 is debited. If the user's wager pays off, the user's account at totalisator 102 is credited by the appropriate amount.

User terminal 122 is shown in more detail in FIG. 2. Microprocessor 132 is connected to memory 134—preferably a read-only memory (ROM)—and memory 136—preferably a random-access memory (RAM) via bus 138. Bus 138 is also used to interconnect microprocessor 132 and memory 134 and 136 with display and control circuitry 140. Display and control circuitry 140 coordinates the operation of the various display, control, and communications peripherals of user terminal 122. Memory 134 and

memory 136 contain instructions that are executed by microprocessor 132. Microprocessor 132 operates in conjunction with display and control circuitry 140 to direct the operation of user terminal 122.

Racing data and video signals are received at input 142 of FM receiver/analog-to-digital converter 144. The racing data are transmitted on an FM carrier in an open range within the bandwidth of the video signals. FM receiver/analog-to-digital converter 144 separates out the racing data signal and demodulates it to a digital format that is processed by display and control circuitry 140. The video signals received at input 142 are passed to multiplexer 146. When the user desires to view video programs corresponding to the video signals received at input 142, multiplexer 146 is switched to allow the video signals on line 148 to pass to monitor 126 (FIG. 1). The control signals used to switch multiplexer 146 may be provided by display and control circuitry 140 via line 152. Preferably, monitor 126 (FIG. 1) is a conventional television set.

The racing data that are received by user terminal 122 are stored in memory 136, so that microprocessor 132 can process this information as desired by the user. The user controls the functions of user terminal 122 via input interface 154, which is preferably a combination of a remote control 156 and a receiver 158. Based on user commands received via input interface 154, display and control circuitry 140 displays various information on monitor 126 (FIG. 1) using video generator 160 and display memory 162. The information to be displayed on monitor 126 (FIG. 1) is provided at output 164 of video generator 160. Display and control circuitry 140 generates an appropriate control signal on line 152, so that the output of video generator 160 is provided to monitor 126 (FIG. 1) via multiplexer 146.

User terminal 122 also has transaction data communication circuitry 166 provide a two-way communications link between user terminal 122 and totalisator 102 (FIG. 1). Transaction data communication circuitry 166 may be based on any suitable communication circuitry such as conventional modem circuitry for communicating via telephone lines. If the distribution network 124 (FIG. 1) supports two-way communications, then transmission and communication circuitry 164 may include appropriate back-haul circuitry to provide a communications link with totalisator 102 (FIG. 1) via a return path over distribution network 124 (FIG. 1) rather than over network 128 (FIG. 1).

In order to place wagers, the user must typically supply a personal identification code to the totalisator 102 (FIG. 1) at which the user maintains an account. The personal identification code is transmitted using the transaction data communication circuitry 166. By transmitting the personal identification code to totalisator 102 (FIG. 1) when placing a wager, the totalisator 102 (FIG. 1) can ensure that the user's personnel identification code matches an authorized code, and can verify the user's account balance prior to authorizing the wager. As an added measure of security, user terminal 122 preferably also has a non-volatile storage device 169, which is used to maintain a local account balance and which contains a user's personal identification code. Suitable non-volatile storage devices include magnetic stripe cards and electronic hardware keys. Physical keys can also be used to provide additional security, if desired.

Preferably, non-volatile storage device 169 includes a smart card interface 168 that accepts smart card 170. Smart card interface 168 allows account and account verification information to be stored on smart card 170. Smart card 170 must be inserted in smart card interface 168 in order to place

a wager. Thus, if a user removes the smart card 170, no wagers can be placed against that user's account by a third party, even if the user's personal identification code is known by that party.

In operation, user terminal 122 displays various menus of options on monitor 126 (FIG. 1). The menus can be invoked by pressing an appropriate "enter" button on remote control 156. Remote control 156 also has cursor keys that allow the user to cursor forward and backward and up and down through the menus. In order to leave the system, the user presses an "exit" button on remote control 156.

The logical flow of the operation of wagering system 100 (FIG. 1) including menus and options provided by user terminal 122 (FIG. 2) is summarized in FIGS. 3-7. As shown in FIG. 3, at step 172 the user selects between several available options: "today's race tracks," "account information," "news and information," and "bet on the next race." A menu 174 corresponding to step 172 is shown in FIG. 8. As shown in FIG. 8, menu 174 preferably contains corporate logo 176 and date and time information 178. Menu options 180, 182, 184, and 185 are preferably displayed in the center of screen 186. To the left of menu options 180, 182, 184, and 185, are cursor boxes 186, 188, 190, and 191. In FIG. 8, cursor 192 is positioned adjacent to the next available menu option—option 180, thereby "highlighting" that option. When a user desires to select the highlighted option, the user presses "enter" or the "right" cursor key on remote control 156 (FIG. 1). If the user wishes to select a different menu option, the user moves the cursor to the next lower or higher menu option on menu 174 using cursor up/down keys on remote control 156 (FIG. 2).

As shown in FIG. 3, if the user selects "today's race tracks" (menu option 180 in FIG. 8) at step 172, the user may then select a desired racetrack at step 196. A menu corresponding to step 196 is shown in FIG. 9. Racetrack menu options 198, 200, and 202 are racetracks available for wagering. Preferably, the list of available racetracks is provided by distribution facility 120 (FIG. 1) to user terminals 122 (FIG. 1), so that by controlling this list it is possible to "black out" certain racetracks.

Cursor 192 is used to highlight the desired track. The menu option adjacent to cursor 192 is also preferably highlighted by changing the color etc. of the option. The next race available for wagering at each racetrack and its corresponding post time are preferably listed adjacent to each track name. For example, the next available race at the Pimlico racetrack is race 3, which has a post time of 1:56. As with the available racetracks, the list of which races are scheduled is preferably provided to user terminals 122 (FIG. 1) by distribution facility 120 (FIG. 1). Accordingly, if it is desired to limit which races are available to the user, this may be done by making this selection at distribution facility 120.

After selecting a track, such as Pimlico, at step 196 (FIG. 3), the user selects a race at step 204 (FIG. 3). The race selection menus 206 and 208 for the Pimlico racetrack are shown in FIGS. 10 and 11. Preferably, the data in menus such as menus 206 and 208 and other menus/screens that are used to display racing data are periodically automatically updated (e.g., at least every 15 minutes) to reflect the most current racing data. To update the display automatically, user terminal 122 (FIG. 1) may display racing data as it is received from distribution facility 120 (FIG. 1) in realtime, or may update the display at predetermined time intervals, based on the most recently acquired data.

Menu 208 is illustrative of a type of menu that may be used whenever it is desired to display more information than

fits easily onto a single screen. Races 1-8 are listed on menus 206 and 208. As shown in FIG. 10, the letter "F" is placed adjacent to races 1 and 2 to indicate that those races have been run and for which the results have been declared final. No wagers can be placed on these races. When menu 206 is displayed (at step 204 of FIG. 3), cursor 192 is placed at a default position adjacent to race 3, because that is the next race available for wagering. As shown in the upper left corner of menu 206, an abbreviation of the racetrack (in this case "PIM" for Pimlico) is displayed to remind the user of the currently selected racetrack. A user selects a desired race by moving cursor 192 to a race and pressing "enter" or an equivalent action button on remote control 156 (FIG. 2).

Returning to FIG. 3, after the user has selected a race at step 204, the user is presented with a menu of available options at step 212. For example, the user can place a wager or view current odds/probables, handicapping data, race results, or weather. If the user chooses to place a wager, the viewer selects an amount to wager at step 214. The amounts available for wagering are preferably transmitted to user terminals 122 (FIG. 1) from distribution facility 120, so that it is possible to limit which wagering amounts are available to the user as desired. Preferably, the user can select the wager amount using an interactive menu such as menu 216 shown in FIG. 12. On the left of menu 216, current odds 218 are listed for each of the runners (e.g., 1-9). Typically, win odds are listed. Thus, as shown on menu 216, the odds for runner 1 winning race 3 are 20 to 1.

The racetracks, races, wager types, wager amounts, and various other menu options that are available to the user at user terminal 122 (FIG. 1) may be controlled from the distribution facility 120 (FIG. 1). For example, the distribution facility 120 can limit the content of its transmissions to user terminals 122 (FIG. 1), so that only certain features are available. If it is desired to black out a given racetrack, then the racing data (and any accompanying instructions to be executed by user terminal 122 of FIG. 1) for that racetrack are not provided to user terminals 122. With this approach, the menu options of user terminals 122 (FIG. 1) may be configured on a system-wide basis.

If desired, user terminals 122 (FIG. 1) may also be individually addressable, which allows distribution facility 120 (FIG. 1) to provide different types of service to different sets of user terminals 122 (FIG. 1). Any suitable addressing technique may be used. For example, an addressing technique similar to that used in conventional addressable cable converter units may be used. User terminals 122 (FIG. 1) may be provided with preprogrammed authorization codes when they are manufactured or a user may be provided with an appropriate authorization code to enter into user terminal 122 (FIG. 1) (e.g., using remote control 156 or smart card 170). Distribution facility 120 (FIG. 1) transmits the racing data and any instructions that are to be executed by microprocessor 132 and display and control circuitry 140 (FIG. 2) in transmission blocks containing an authorization code. User terminals 122 (FIG. 1) compare each incoming transmission block with their authorization code. When the code matches, racing and other data within the transmission block are accepted for use by that user terminal 122 (FIG. 1).

Individual addressability allows selected subsets of user terminals 122 (FIG. 1) to be permitted to have access to certain racetracks, sets of races, wager types, or wager amounts. Because distribution facility 120 (FIG. 1) can provide preselected features to selected subsets of users, it is possible to provide various tiers of service, etc.

As shown in FIG. 12, on the right of menu 216 is an abbreviation 220 of the currently selected racetrack (i.e.,

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"PIM" for Pimlico). Current race **222** is also listed (i.e., race **3**). Information such as the current time and the time remaining to post time is displayed in box **225**. Preferably, the post time blinks or otherwise changes its appearance within a certain predefined time window prior to a race, so as to provide a visual clue that the start of the race is approaching.

When first presented to the user, menu **216** has a highlighted portion **224** (e.g., \$5). The user selects the desired wager amount by moving highlighted portion **224** using the up/down and left/right cursor keys of remote control **156** (FIG. 2). When highlighted portion **224** rests on the desired wager amount, the user presses the enter key on remote control **156** (FIG. 2). Highlighted portion **224** is then placed on the done box **226**. If the user is ready to proceed, the user presses the enter key on remote control **156** (FIG. 2). If, instead, the user wishes to return to menus **206** and **208** (FIGS. 10 and 11), which correspond to step **212** (FIG. 3), then the user highlights and selects go back box **228**.

As shown in FIG. 3, following selection of the wager amount at step **214**, the user selects a desired type of wager at step **230**. A typical wager type selection menu **232** is shown in FIG. 13. Additional wager types can be supported by providing additional wager selections on wager selection menu **232**. Preferably, the wager types available at selection menu **232** are determined by distribution facility **120** (FIG. 1). Thus, the wager types available to the user may be controlled by limiting what information is transmitted from distribution facility **120** (FIG. 1) to user terminals **122** regarding wager types. Highlighted portion **234** initially rests on one of the wager types, such as WPS, which stands for win, place, and show. Other available wager types include, but are not limited to, WIN (win), PLC (place), SHW (show), WP (win-place), WS (win-show), and EXA (exacta). Suitable wager types also include trifecta, quinella, daily double, and pick-n type wagers (where n is a value from, e.g., 3 to 10).

Preferably, menu **232** is similar in appearance and layout to other menus, such as menu **216** (FIG. 12), so that the user is presented with a fairly uniform interface. For example, odds are shown at the left of menu **232**, just as they are shown at the left of menu **216** (FIG. 12). Similarly, the racetrack abbreviation, race number, current time, and time remaining to post are shown on the right of menu **232** in the same way that this information is displayed in menu **216** (FIG. 12). By changing the overall layout of the menus as little as possible from one screen to the next, viewer confusion is minimized and screen storage requirements for the user terminal **122** are reduced. An additional item in menu **232**, which is not shown in the wager amount menu **216** of FIG. 12, is selected wager amount **236** (\$5 in the example of FIG. 13).

As shown in FIG. 14, the user selects the desired bet amount by moving highlighted portion **234** to the desired wager type and pressing the enter key on remote control **156** (FIG. 2). In FIG. 14, an exacta wager was chosen by selecting EXA box **238**. The selected wager type may be indicated in any suitable fashion, for example, by changing the color of the wager type box. Further, as shown in FIG. 14, code **240** corresponding to the selected wager type can be displayed. After an exacta wager (or any multi-leg single race wager) is selected, highlighted portion **234** is either automatically placed on BOX **242** or, preferably, onto DONE **243** with the ability to move the cursor onto BOX **242** to allow a user to place a box bet (any multi-leg wager where the first leg or list of runners is used for all legs of the wager). Placing a box bet is a simplified method of placing a wager using the same runner list for each leg of a multiple leg wager.

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After selecting the wager type at step **230** of FIG. 3, the user selects runners at step **244**. As shown in FIG. 15, for an exacta wager the user selects one or more runners for first leg **246** and second leg **248**. If more than one runner is selected per leg, the number of possible exacta wager combinations is automatically calculated and the total cost of the wager updated accordingly at box **250**. When all desired runners have been selected, the user selects done box **252**, which causes the system to proceed to step **254** in FIG. 3.

In step **254** (FIG. 3), wager queue menu **256** is displayed, as shown in FIG. 16. Each wager is summarized on a line adjacent to a wager number **258**. In the example shown in FIG. 16, the first wager is an exacta wager on the third race at Pimlico. Shown at the bottom of menu **256** are the menu options send/delete, more bets same race, more bets other race, and main menu. These menu options are displayed at step **258** (FIG. 3) when the wager queue is not full. Typically, the wager queue can contain up to five wagers. Before additional wagers can be added, the wagers in the queue must be sent to the racetrack. If the wager queue is full following step **254** (FIG. 3), then the menu choices of delete a wager, send wagers, duplicate a wager, and main menu are displayed at step **260**. The menu options made available at step **260** are limited by the state of the queue. For example if the queue is full, the option "duplicate a wager" will not be available, etc. A typical menu **262** on which these options are displayed is shown in FIG. 17.

The menu options listed in menus **256** and **262** (FIGS. 16 and 17) allow the user to modify the wagers listed in the queue, make additional bets, etc. For example, as shown in FIG. 3, if at step **258** the user selects "more bets same race," the user is returned to step **214**, at which a new wager amount can be selected. The user can then proceed through steps **230**, **244**, **254**, etc. as described above. If at step **258** the user selects "more bets other race," the user is returned to step **204**, at which a new track may be selected. Another option at step **258** is to return to the main menu. If "main menu" is selected, the user is returned to step **172**.

If the user selects "send/delete" at step **258** then the system proceeds to step **260** (menu **262** in FIG. 17). At step **260**, the user has the option of deleting a wager that is no longer desired. For example, if the user wishes to delete wager **1**, the user moves the highlighted portion of the menu to wager **1** and presses the enter key on remote control **156** (FIG. 2), whereupon the information for wager **1** is removed from menu **262** (FIG. 17). If "duplicate a wager" is selected, the user can make a copy of a wager, which appears on the next available wager line. Thus, if wagers **1** and **2** are filled, the user can position the highlighted portion of menu **262** (FIG. 17) adjacent to wager **1** and press enter. Wager **1** will then be duplicated as wager **3**.

In order to place wagers, the wager information entered onto menu **262** must be sent to totalisator **102** (FIG. 1) via network **128** (FIG. 1). At the same time that a wager is sent, the user must transmit his personal identification code to allow the totalisator **102** (FIG. 1) to verify the status of the account against which the wager is to be placed. Totalisator **102** adjusts the user's account to reflect the results of the wager. If sufficient funds exist in the account, and if the wagering information is otherwise satisfactory, totalisator **102** (FIG. 1) will accept the wager and will typically debit the account. If the wager pays off, the account will be credited by the appropriate amount.

When a user is ready to send a wager to totalisator **102** (FIG. 1), the user selects "send wagers" from menu **262** in

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FIG. 17. Preferably, if no smart card is present, a message appears on monitor **126** (FIG. 1) instructing the user to insert smart card **170** (FIG. 2). The user is next instructed to enter his personal identification code using remote control **156** (FIG. 2). The personal identification code is compared to a prestored personal identification code on smart card **170** (FIG. 2). If, from comparison of the entered personal identification code to the personal identification code stored on card **170** (FIG. 2), it is determined that the user is authorized to use the account, then the transaction data necessary to place the wager with totalisator **102** (FIG. 1) are sent to totalisator **102** (FIG. 1). During the process of sending the wager information to totalisator **102** (FIG. 1), the user is preferably provided with messages on monitor **126** (FIG. 1) that indicate when the system is dialing and sending the data, and when it has been confirmed that the wager has been sent.

If, instead of selecting "place wager" at step **212**, the user selects "current odds/probables," the system proceeds to step **264**, as shown in FIG. 4. At step **264**, the user is presented with a menu listing which odds and statistics are available for viewing. If the user selects "odds/pools" at step **264**, the user is passed to step **266**, in which odds and pools are preferably displayed in a format shown in FIG. 18. In chart **268**, the win odds for each runner are displayed adjacent to the number of that runner. Also listed in chart **268** are the dollar amounts of each pool of placed wagers for each bet type (win, place, or show). At the bottom of chart **268** is a total of all pools for each wager type: win, place, and show.

Wager odds for wager types other than win odds can also be shown. For example, show or place odds can be displayed. With previously known off-track terminals it has not been possible to display show and place odds. Accordingly, if a home racing fan desired such information, he would need to make calculations by hand. In contrast, with the present invention, user terminal **122** processes the racing data provided by totalisator **102** (FIG. 1), so that odds for many wager types are available. The user can therefore quickly and accurately review these odds interactively in the home.

Information regarding exacta, trifecta, and other complex wager pool totals and payoff values for the various wager combinations may be selected at step **264** (FIG. 4). Any suitable display format may be used to show the desired information. A typical exacta pays screen **272** is shown in FIG. 19. Win odds are listed for each runner and predicted exacta payoffs are listed for each of the possible exacta combinations of runners. Thus, if there are nine runners there are typically nine screens **272**. The first screen **272** lists the payoffs for runner **1** as a first place finisher (**1** and **x**), where **x** is each of runners **2-9**. Also listed are the payoffs for runner **1** as a second place finisher (**x** and **1**). Subsequent screens are used to provide information for other runners. For example, the second screen **272** lists the payoffs for runner **2** as a first and second place finisher. Another item listed on screen **272** is exacta pool **274**.

The odds and payoffs for other sophisticated wager types, such as trifectas, daily doubles, pick three, pick four, etc. can be listed in the same fashion if desired. Due to the limited nature of previously available off-track betting terminals, it has not been possible to determine odds and payoff information for many sophisticated wager types. For example, it has not previously been possible to determine odds for various combinations of runners within the complex wager types. With the present invention, complex wagering information may be calculated and displayed by user terminal **122** (FIG. 2). Because it has not previously been possible to

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display such detailed information using an off-track terminal, such information has either been completely unavailable or has only been available to racing fans who have traveled to the racetrack or to off-track betting establishments.

In addition, an advantage of the present system is that the user can interactively control the display of the odds and payoffs screens for the various wager types. For example, the user can move forward or backward through the wager information screens, such as screen **272** (FIG. 19), which shows the predicted payoff amounts if a particular runner combination wins an exacta wager. Previously known methods of displaying such information involve providing a non-interactive scrolling list of the information, e.g., on a monitor at a racetrack. But with that method it is necessary to wait until the information one wishes to view is presented on the monitor. In contrast, with the present invention the user can interactively advance forward and backwards through the screens such as exacta pays screens **272** as desired.

Returning to step **212** (FIG. 3), another menu option that can be selected by the user is to view handicapping data. If "handicapping data" is selected at step **212** (FIG. 3) then the user is presented with a menu of available handicapping data as shown at step **276** in FIG. 5. Preferably, the menu options available at step **276** include: snapshot power ratings, speed-class ratings, pace ratings, and jockey/trainer. If "snapshot power ratings" are selected at step **276**, power ratings are displayed at step **277** (FIG. 5) on screen **278**, as shown in FIG. 20. At the top of power ratings screen **278** is a banner including information such as race number **280** (e.g., race **1**), race distance/surface **282** (e.g., 5 Furlongs on dirt), amount claimed **284**, class rating **286**, and runner age **288**.

Below this banner, more detailed information pertaining to each runner is preferably listed. For example, runner name **290**, number of days off since the last race **292**, wins/starts for the selected surface and distance category **294**, morning odds **296**, and power rating **298**. The information necessary to make up screen **278** may be provided to the wagering system **100** (FIG. 1) via input **116** (FIG. 1).

In addition to displaying snapshot power ratings, a user can choose to display speed/class ratings at step **276** (FIG. 5). If "speed/class ratings" is selected at step **276** (FIG. 5), then at step **300** (FIG. 5) screen **302** of speed/class ratings is displayed, as shown in FIG. 21. Screen **302** preferably contains information banner **304**, as in screen **278** (FIG. 20). Also in screen **302** are runner name **306**, speed rating **308**, speed rating for this distance and track surface **310**, highest speed rating for this distance and track surface **312**, class rating **314**, and class rating of last race **316**.

Another option is available if the user selects "pace ratings" at step **276** (FIG. 5). Selecting "pace ratings" takes the user to step **318** (FIG. 5), at which pace ratings screen **320** is displayed, as shown in FIG. 22. As with screen **278** (FIG. 20) and screen **280** (FIG. 21), screen **320** contains handicapping data for each runner. Preferably, screen **320** contains typical position at early call **322**, typical position at middle call **324**, typical position at finish **326**, and number of races in calculation **328**.

A further display of handicapping data is available if the user selects "jockey/trainer" at step **276** (FIG. 5). If jockey/trainer is selected, control passes to step **330** (FIG. 5), at which screen **332** is displayed, as shown in FIG. 23. Screen **332** contains handicapping information about the jockeys and trainers for each runner. Typically, such information includes jockey and trainer names **334** and information

about recent race statistics **336**. Other jockey/trainer information that can be provided includes information relating to jockey changes and overweights for each runner.

Returning to FIG. 3, another option available at step **212** is to display race results. If the user selects "results" at step **212**, the results of the race selected at step **204** are displayed on the display **126** (FIG. 1) at step **338**. One suitable format for displaying race results is shown in FIG. 24. Runner numbers **340** are displayed as well as payoffs for a standard wager (e.g., \$2) for win, place, and show bets. If desired, results can also be displayed for the more sophisticated wager types such as exactas, trifectas, daily doubles, pick three, pick four, etc.

The present invention allows the user to interactively control the display of the race results screens. For example, the user can select a track and page through the results for the various races at that track. Preferably, the user can use the cursor keys on remote control **156** (FIG. 2) to move between the race results screens for various races.

Another option available at step **212** in FIG. 3 is for the user to view weather and track conditions for a selected racetrack. If the user selects "weather/conditions" at step **212**, weather information is interactively presented at step **342**. The weather for the city and state in which the selected racetrack is located is preferably displayed, as is more detailed weather information, including track conditions, temperature, humidity, dewpoint, and a short status description of the current weather (sunny, raining, foggy, etc.).

If the user selects "account information" (menu option **182** in FIG. 8) at the initial menu displayed at step **172** (FIG. 3), the menu options "bet queue," "account information," and "transaction history" are displayed at step **344**, as shown in FIG. 6. If "bet queue" is selected at step **344**, the queue is viewed at step **346** and control then passes to step **260** (FIG. 3). At step **260**, the user can select from the menu choices "delete a wager," "send wagers," "duplicate a wager," and "main menu," as described above.

If "transaction history" is selected at step **344** in FIG. 6, the user terminal **122** (FIG. 2) preferably retrieves information concerning recent transactions such as wagers placed and the results of these wagers from smart card **170** (FIG. 2) at step **348**. If desired, this information can be retrieved remotely, from totalisator **102**. Using the retrieved information, the user's transaction history is displayed at step **350**. After the user is finished reviewing the recent transaction history, the user is returned to step **172** (FIG. 3), where the initial menu options are displayed.

If the user selects "account balance" at step **344**, at step **351**, the user selects whether to retrieve his account balance remotely, from totalisator **102** (FIG. 1), or locally at terminal **122**, from smart card **170**. If the user selects "remote" at step **351**, then the user enters his personal identification code at step **352**. User terminal **122** (FIG. 2) then obtains current account information from totalisator **102** (FIG. 1) and displays this information at step **354**. If the user selects "smart card" at step **351**, then the user enters his personal identification code at step **353**. User terminal **122** (FIG. 2) then obtains current account information from smart card **170** (FIG. 2) and displays this information at step **355**. Preferably, information retrieved from smart card **170** (such as account balances) is for informational purposes only. No wagers can be authorized solely through the account information on smart card **170** (FIG. 2). This prevents unauthorized wagering if the card is tampered with. After the user is finished reviewing the account balance at step **354** or step **355**, the user is returned to step **172** (FIG. 3), where the initial menu options are displayed.

The benefit of storing account and transaction history information locally on smart card **170** (FIG. 2) is that it is not necessary to communicate with totalisator **102** (FIG. 1) each time it is desired to review such information. Because the user does not need to communicate with totalisator **102** (FIG. 1) for routine transaction history and account balance queries, the user avoids any fees that may be associated with such queries. The user also reduces the frequency with which he needs to use his telephone line. Further, data corresponding to additional wagering transactions, such as recent wagering activity, may be stored on smart card **170** (FIG. 1).

The account and transactional information for each user is preferably stored on his individual smart card **170** (FIG. 2). This allows the user to visit other homes in which there are user terminals **122** (FIG. 1), without losing ready access to his account information. Alternatively, the account and transactional information can be stored in a suitable memory device in user terminal **122** (FIGS. 1 and 2).

Another menu option available at step **172** of FIG. 3 is the option to view news and information. If "news and information" (menu option **184** in FIG. 8) is selected at step **172**, a submenu of news and information options is displayed at step **356**, as shown in FIG. 7. The illustrative menu options displayed at step **356** include the option of viewing information about schedule times for racing video simulcasts available to the user. Racing simulcasts may be available via satellite, cable, broadcast, or other suitable video transmission medium. Typically, not all of the races run at the various racetracks are simulcast on television. Certain racetracks may not wish to create a disincentive for racing fans in the area to visit the track in person. For other racetracks there may not be sufficient demand to warrant the effort of televising all of the races. And because the post times of races are typically determined locally by the management of the racetrack, they may be subject to last minute changes or unforeseen delays. For each of these reasons, it is difficult or impossible for a user to accurately determine which races are currently available via simulcast. Accordingly, with the present invention, when the user selects "simulcast schedule" at step **356**, a current schedule listing the races available via simulcast is displayed.

Other menu options available at step **356** include commercial advertisements. As shown in FIG. 7, menu option **358** is an advertisement called "Laurel on the Air," which could be, for example, local advertising for upcoming events on television or radio relating to the Laurel racetrack. An illustrative listing for Laurel on the air is shown in FIG. 25.

Menu option **360**, entitled "handicapping seminar" could be, for example, an advertisement for an upcoming seminar on handicapping techniques to be presented at a particular racetrack. An illustrative handicapping screen is shown in FIG. 26.

Menu option help **362** allows the system to display help information. For example, explanations of how to use the terminal **122**, how to place certain types of wagers, or how to handicap effectively may be provided. A submenu that may be provided after menu option help **362** has been selected includes menu options "using the system," "how to bet," and "handicapping information." FIG. 27 shows a screen that can be displayed if "using the system" is selected. FIG. 28 shows a screen that can be displayed if "how to bet" is selected followed by information on "win, place, and show" bets. Information on additional wager types is preferably available by pressing an advance or equivalent cursor on remote control **156** (FIG. 2). If "handi-

capping information" is selected from the submenu, then descriptions of the various types of handicapping information available (see, e.g., FIGS. 20-23) are provided. The menu option 364 (FIG. 7) entitled "other" allows additional information to be provided.

The news and information menu options available at step 356 are illustrative only. As explained in connection with descriptions of further embodiments of the present invention, additional features may be added if desired, such as the ability to add video information to the services described above.

If desired, "hot" buttons may be used to provide shortcuts through the menu hierarchy of FIGS. 3-7. For example, a hot button 185 labeled "bet on the next race" may be provided as menu option 185 in FIG. 8. If the user selects this option at step 172 (FIG. 3), the user terminal 122 (FIG. 2) determines which upcoming race is the next race available for wagering. The user terminal 122 (FIG. 2) then presents the user with the option of selecting the wager amount for that race at step 214 (FIG. 3). Hot button 185 therefore allows the user to bypass selection steps 196, 204, and 212 (FIG. 3), which the user would otherwise need to pass through. Preferably, any hot button arrangement of the present invention allows the user to bypass one or more selection steps (also called "menu layers"). Hot buttons thus allow quicker movement through various layers of menus than would otherwise be possible (e.g., using a conventional tree-type menu structure without hot buttons).

Further aspects of the present invention are illustrated in connection with wagering system 366, shown in FIG. 29. Many features of wagering system 366 may be provided using an arrangement similar to wagering system 100 (FIG. 1), if desired. Wagering system 366 has a video and data distribution system 368 for distributing racing data racing videos to user terminals 370. The video and data distribution system 368 may be based on any suitable conventional distribution technology, such as satellite transmission, cable television transmission, or television broadcasting. Video and data distribution system 368 receives racing data from racing data interface 372. This signal feed typically has a significantly lower data-rate requirement than live video signals. Accordingly, the racing data transmitted from racing data interface 372 to video and data distribution system 368 may use any of a number of available signal distribution technologies. For example, leased telephone lines may be provided between racing data interface 372 and video and data distribution system 368. Alternatively, racing data may be transmitted by satellite at this stage.

Racing videos, which are received from racing video source 374, preferably use a high-capacity transmission medium such as satellite transmission or cable transmission for at least part of the signal pathway between the point of origination of the video signals and video and data distribution system 368. For example, one suitable source of racing videos is the simulcast transmission of video signals from racetracks. These racing videos can be transmitted by a combination of cable and satellite to a centralized racing video source 374, from which the videos may be transmitted to video and data distribution system 368 via satellite. Alternatively, the racing video may be archived on video tape or another video storage medium, so that the racing video source 374 should include suitable video playback equipment (not shown). Archived racing videos can be played back according to a predetermined schedule, or according to viewer demand.

Regardless of the source of the racing video signals provided at racing video source 374, and regardless of the

medium used to transmit these videos from racing video source 374 to video and data distribution system 368, the racing videos are preferably available for the user to watch at home while the user simultaneously has access to the racing data provided by racing data interface 372. Because real time racing video clips require the full bandwidth of a television channel (although the video could be compressed somewhat using conventional data compression techniques), data and video link 376 between video and data distribution system 368 and user terminals 370 must at least have the capacity of a single television channel. Preferably, the racing videos are distributed over a dedicated racing channel. Racing data may be distributed using any suitable data distribution technique, such as transmission over a sideband or during the vertical blanking interval of the dedicated channel.

Video and data distribution system 368 includes a cable headend facility, satellite facility, or broadcast facility that preferably supplies a full range of conventional television channels to the user in addition to the capability of providing a dedicated racing channel to the user. When the user desires to watch television, the user can tune to one of these channels. The user can tune to a television channel using a user terminal 370 in conjunction with a monitor 378, which is preferably a conventional television set. If user terminal 370 does not contain a tuner capable of tuning to all of the available channels, or if it is desired to bypass the terminal 370 for other reasons, the user can watch television on monitor 378 directly, provided that monitor 378 includes a television tuner.

Thus, a number of alternative approaches can be used to provide racing videos and racing data to the user. However, a common element to all of these approaches is that video and data distribution system 368 be capable of delivering racing video signals from racing video source 374 to user terminals 370 in realtime. The video and data distribution system 368 also delivers racing data to user terminals 370. Thus, wagering system 366 avoids the shortcomings of previously known systems in which no racing videos could be provided to user-controllable terminals and in which limited racing data were at best provided to off-track terminals via telephone lines.

Racing data are provided by a number of sources, including wagering data management system 380. Wagering and data management facility 380 may be a totalisator such as totalisators 382, or may be a stand-alone computer system capable of communicating with totalisators 382. If desired, wagering data management facility 380 may include an accounting capability for managing user accounts.

The type of racing data provided to racing data interface 372 by wagering and data management facility 380 typically includes the current race at each track, which races and tracks are open for wagering, the post times of each race, and the number of races associated with each track. Racing data also include the win, place and show "pool" totals, exacta, trifecta, quinella and other wager payoff predictions, and the actual odds for the current race at each track, as well as the "morning line" odds for any future race. In addition, racing data typically include the number of minutes remaining until post time for the current race at each track.

Racing data provided by wagering data management facility 380 also include race results, such as actual payoff values versus a standard wager amount for win, place, and show wagers. Also provided are actual payoff values for the winning complex wager types, including exacta, trifecta, quinella, pick-n (where "n" is the number of races involved

in the pick-n wager), and daily double. Payoff values may also be accompanied by a synopsis of the associated finish list.

In addition, pools, payoffs, and odds may be provided for other wager types, such as omni bets, superfectas, and double-triple bets.

The racing data from wagering data management facility **380** further include program information including the number of runners in each race, valid wager amounts and types accepted by racetracks, scratch lists, distances of each race, and race surfaces. Program information also includes race classification information, the purse, the allowed age range of runners, and the allowed number of wins and or starts for each runner. Racing data from wagering data management facility **380** are delivered to racing data interface **372** via data link **384**, which may be any suitable data transmission medium, such as a leased telephone line, cable, satellite, etc.

Racing data interface **372** also receives racing data via supplemental input **386** and manual input **388**. The racing data received at inputs **386** and **388** include racing data from third party information sources such as Axcis Pocket Information Network, Inc. of Santa Clara, Calif. Such third party racing data typically include post times, the number of races associated with each track and other information that typically is only provided via a printed racing program. Weather information, such as track conditions, temperature, humidity, dewpoint, and a short status description of the current weather (sunny, raining, foggy, etc.) may also be provided via inputs **386** or **388**.

Wagering data management facility **380** preferably includes the capability of either maintaining a user's account or communicating with a user's account located at one of totalisators **382**. Totalisators communicate with one another via the well-known Intertote Track System Protocol (ITSP). Racing fans using user terminals **370**, communicate with wagering data management facility **380** via communication lines **390**, network **392** and transaction data interface **394**.

In accordance with one aspect of the present invention, communication lines **390** are telephone lines, network **392** is a telephone network, and transaction data interface **394** is an automated modem system for receiving incoming transaction data from communication devices contained within user terminals **370**. Link **396**, which provides a communication pathway between transaction data interface **394** and wagering and data management facility **380** may be any suitable type of communication link, for example, 30 RS-232 data lines. Although a telephone link may be used to provide two-way communications for transaction data (wagers placed, account information, etc.), any suitable communication pathway between user terminals **370** and wagering data management facility **380** may be used. For example, transaction data may be relayed to and from user terminals **370** via data and video link **376**, video and data distribution system **368**, and communication link **398**.

In addition to the various elements described above, wagering system **366** may optionally include a subscriber management/customer service facility ("subscriber facility") **400**, which is a computer-based facility for coordinating bank transfers and merchandise orders, handling paperwork required by tax and other regulations, and for supplying marketing information to third parties.

User terminals **370** are linked to subscriber facility **400** via communication lines **390**, network **392**, and communication line **402**, which may be, for example, a leased telephone line. Subscriber facility **400** is linked to wagering data management facility **380** via communication line **404**.

Additional communication links are formed between subscriber facility **400** and racetrack **406**, merchandise fulfillment house **408**, production facility **410**, bank facility **412**, and third parties **414**. These links may be formed using any suitable communications medium, such as telephone lines.

Subscriber facility **400** provides wagering system **366** with the capability to implement a variety of marketing and customer service related activities. For example, when the user desires to transfer bank account funds to his wagering account, a transfer authorization can be sent from user terminal **370** to subscriber facility **400** via communication line **402**, where, after suitable processing, the transfer request is sent to bank facility **412**. Bank facility **412** may be at the user's bank, or an affiliated bank connected to a banking network capable of authorizing the requested transfer. After bank facility **412** approves the requested transfer of funds, subscriber facility **400** transmits suitable fund transfer instructions to wagering data management facility **380**.

Another useful feature that may be implemented using subscriber facility **400** is allowing the user to place merchandise orders from the home. Commercial advertising may be provided with wagering system **366**. For example, video advertising clips may be displayed simultaneously with racing videos etc. If a menu option indicates that merchandise, such as racing memorabilia, promotional materials, collectibles, etc. is available, then following step **356** (FIG. 7) the user may interactively place an order for merchandise using wagering system **366**. If desired, the user may place merchandise orders against funds located in the wagering account located at wagering data management facility **380** or at the user's account at bank facility **412**. Alternatively, the user may place orders using a credit card.

Generally, the information necessary to consummate an on-line purchase of merchandise is well known. This information is collected and disseminated to the appropriate parties by subscriber facility **400**. For example, funds verification may be performed by communicating with wagering data management facility **380** or bank facility **412**. Merchandise orders may be placed with the racetrack **406** that offered the merchandise, or with merchandise fulfillment house **408**.

Subscriber facility **400** may also be used to facilitate monitoring of the usage of user terminals **122**. In order to improve the performance of wagering system **366**, it may be desirable to determine precisely how various users interact with the various menus etc. that are provided by user terminal **122**. User terminals **122** can be programmed to monitor the way in which users interact with the menu structure implemented on user terminals **122**. For example, user terminals **122** can monitor how long each user spends at each screen, etc. Periodically, this information may be collected by subscriber facility **400** via communication line **402**. This information can be used to improve the performance of the menu structure implemented on user terminals **122**, or may be used for marketing purposes (e.g., for direct marketing).

Production facility **410** may be used to satisfy regulatory paperwork requirements for tax and other purposes. In addition, additional or replacement smart cards or user terminals **370** may be ordered from production facility **410**.

If desired, a user's personal preferences, such as wagering habits, betting preferences, merchandise orders, etc. may be supplied to third parties **414**. The user's personal preference data may be transmitted from user terminals **370** to wagering data management facility **380** during the placing of wagers.



Later, wagering data management facility **380** transmits the personal preference data to subscriber facility **400**, from where the data may be provided to, e.g., third parties **414**.

A typical user terminal **370** is shown in FIG. **30**. User terminal **370** has display and processing circuitry **416**, which receives racing data and realtime video signals including videos from racing video source **374** via video input **418**. The user enters commands with user input interface **420**, which may be any suitable input interface, such as a remote control, keyboard, a conventional voice-actuated controller system, etc. Display and processing circuitry **416**, which is preferably microprocessor-based, coordinates the display of the racing data and videos on monitor **378** and the recording of videos on video recorder **424**. User terminal **370** also has transaction data communication circuitry **422** (e.g., modem circuitry) for communicating transaction data to wagering data management facility **380** (FIG. **29**) and subscriber facility **400** (FIG. **29**).

As is well known, set-top converters, video cassette recorders, audio/video receivers, and other audio/video equipment may be interconnected in a variety of ways. For example, some audio/video components receive a full range of television channels on a radio frequency (RF) input line, and output a selected channel or other video signal on an RF channel such as channel **2**, **3**, or **4**. An output provided on an RF channel must be processed by a television tuner tuned to that channel. Accordingly, this type of arrangement is suitable for audio/video equipment that is connected to an audio/video component having a television tuner (e.g., a conventional television set). Some audio/video equipment provides direct video and audio signal outputs, which may be received by a monitor or other audio/video component that does not have a television tuner.

In accordance with the present invention, the racing videos and data received via input **418** are typically received along with a complete range of television channels. In one suitable arrangement, the racing videos are provided on one or more dedicated channels and the racing data can be provided in an available region of bandwidth within these channels (e.g., on a frequency modulated sideband). If the racing videos and data are provided over a digital video channel (e.g., as used with certain television satellite systems), the video signals occupy one portion of the digital signal and the racing data another. Display and processing circuitry **416** contains circuitry for separating out the racing data from the video signals. Racing data are processed by display and processing circuitry **416** so that various menus of options and data may be displayed. Racing videos and the menu displays can be provided to monitor **378** via RF output **426** or video and audio output **428**.

Because cable channels are often scrambled, display and processing circuitry **416** may also contain suitable circuitry for descrambling the cable (or satellite) television channels to which the user subscribes. Alternatively, the user may attach a conventional set-top cable converter unit to their television, for use in conjunction with user terminal **370**.

Further, various different connections are possible with video recorder **424**. If video recorder **424** is a conventional video cassette recorder, video output **430** may be an RF output or a video and audio output. If video recorder **424** only contains recording components and not a television tuner, then an RF output would not be suitable. In that case, video output **430** is preferably a video/audio output rather than an RF output.

Commands from display and processing circuitry **416** are provided to video recorder **424** over communication path

**432**. Communication path **432** may be a direct electrical connection to video recorder **424** or may use an infrared output circuit coupled to the infrared input of video recorder **424**. If desired, video recorder **424** may be provided with the capability of providing as an output video recorder status data regarding the state of video recorder **424** (e.g., tape inserted, play/record confirmed, index data on tape read/confirmed, etc.). The video recorder status data may be provided to display and processing circuitry **416** over communication path **432**. Video recorder **424** may also be provided with a dedicated set-top converter box (such as shown connected to monitor **378** in FIG. **30**). The set-top converter box may be provided downstream from the other components of user terminal **370** or may be provided as a completely separate input.

In the illustrative example shown in FIG. **30**, set-top box **434** is provided midway between display and processing circuitry **416** and monitor **378**. With this arrangement, line **436** is preferably an RF line. Another way in which television signals may be provided to monitor **378** is to provide additional RF or video/audio input **440** to monitor **378**. If desired, descrambling on this line may be performed by set-top box **442**. Switching between the desired audio/video and RF inputs to monitor **378** may be performed by circuitry within monitor **378**, if desired.

If an audio/video receiver is also connected to the user's home system, further options are available. For example, the audio/video receiver (not shown) may be used to switch the various audio and video signals shown in FIG. **30**. RF video signals may be switched using suitable RF switching equipment.

Thus, there are numerous suitable ways in which to arrange and interconnect various home audio/video components and user terminal **370**. The particular arrangement chosen for user terminal **370** is not limited to any one setup. For example, monitor **378** may be a conventional television with an integral television tuner or may be any other suitable display monitor. Video recorder **424** may be a conventional video cassette recorder or may contain a status data output in addition to the components necessary to perform video recording and playback. One or more set-top boxes **442** or **434** may be provided. An audio/video receiver or RF signal switching and splitting circuitry may be connected to user terminal **370**. Any of these components may be provided as a separate audio/video component or may be made integral with user terminal **370**.

Wagering system **366** (FIG. **29**) may be used to provide a variety of interactive wagering features. In accordance with one aspect of the present invention, when the user invokes wagering system **366** (e.g., by entering an appropriate command via user input interface **420** (FIG. **30**), the user is presented with an initial racetrack selection menu at step **444**, as shown in FIG. **31**. A suitable format for the racetrack selection menu is a list highlighted to show the current selection. Another suitable format for the racetrack selection menu is map menu **446**, shown in FIG. **35**. With this approach, the various available racetracks are displayed on a map, e.g., of the United States. The currently selected racetrack (Hollywood park in FIG. **35**) is highlighted. Preferably, the user can select a racetrack using cursor keys to move up/down and right/left until the highlighted portion is positioned on the desired racetrack. The user may then press enter to select that track. As shown in FIG. **35**, map menu **446** preferably has go back button **447**. If the user selects go back button **447**, the user is returned to the previous menu. In addition to serving as a menu for track selections, a format similar to that of map menu **446** may be



used to allow the user to make other selections, such as when choosing a region of the country from which racing or other information (e.g., commercial advertising) is desired. Map menu 446 may be highlighted using any suitable technique, e.g., using an icon.

After a racetrack has been selected at step 444 of FIG. 31, the user decides whether to select a wager amount or make a menu choice at step 448. The term "menu choice" used in connection with FIGS. 31-34 includes: "other track," "other race," "information," and "account." In accordance with the present invention, menu choices other track 450, other race 452, information 454, and account 456 are displayed on a screen 458 of mixed text and video, as shown in FIG. 36. Preferably, menu options appear at the bottom of screen 458. The currently selected racetrack 460 (Churchill Downs), race no. 462 (race 2) and time until post 464 (nine minutes) appear in a banner 466 at the top of screen 458. The default for the currently selected race is the next race scheduled to be run at the selected racetrack. Current odds or other useful racing information items appear in box 468.

In addition, a realtime racing video 470 is simultaneously displayed in box 472. Preferably, racing video 470 is a simulcast from the selected racetrack corresponding to the next scheduled race. Typically, race previews are shown prior to each race. These previews may contain views of the racetrack, fans, and runners, interviews with jockeys and trainers, and commentary. At post time, the video of the race itself is shown. If no racing videos are available at the selected track, box 472 can contain a video clip of races at other tracks or can contain advertising information, etc.

The arrangement of screen 458 allows the user to gauge how much time is left to place a wager by viewing the time until post 464, and viewing racing video 470. Current odds may be readily reviewed at box 468. With screen 458, the user can watch racing previews and race videos in realtime, while wagering on races interactively.

In step 448 of FIG. 31, the user selects a bet amount by moving highlighted portion 474 (FIG. 36) to the desired dollar amount (\$5 in FIG. 36). With any screen such as screen 458 (FIG. 36), the user can make a desired selection using input interface 420 (FIG. 30). For example, if user input interface 420 (FIG. 30) includes an infrared remote control and receiver, the user can press a "select" or "enter" key on the remote control to make a selection.

After selecting a bet amount at step 448 of FIG. 31, the user is passed to step 476, in which a bet type or a menu choice is selected. The bet type can be selected using a screen such as screen 478 in FIG. 37. As shown in FIG. 37, many of the display features of screen 458 (FIG. 36) remain unchanged as the user moves from step 448 (FIG. 31) to step 476 (FIG. 31). For example, banner 466 is unaffected, as are menu choices other track 450, other race 452, information 454, and account 456. Box 468 (which contains odds) and box 472 (which contains racing video 470) are also unchanged from step 448 (FIG. 31) to step 476 (FIG. 31). An advantage of providing screens that do not change excessively from step to step is that the user is less likely to be confused, and can find menu options more readily with this approach.

The user selects a bet type such as a win bet by moving highlighted portion 480 to the win bet and selecting it, e.g., by entering the appropriate command with user input interface 420 (FIG. 30).

After selecting the bet type at step 476 of FIG. 31, the user is presented with a runner selection menu at step 482. A suitable screen format for the runner menu is given by screen

484 in FIG. 38. Having selected the number of runners either required or allowed for the selected bet type, the system proceeds to step 486, at which the user is presented with the menu options place wager 488, another amount 490, and cancel 492 in addition to the menu choices 450, 452, 454, and 456 listed at the bottom of screen 494 in FIG. 39. Also displayed on screen 494 are wager number 496, wager amount 498, bet type 500 for the wager selected in steps 448, 476, and 482.

If the option place wager 488 is selected, wager transaction data corresponding to the selected wager is transmitted from user terminal 370 (FIG. 29) to wagering data management facility 380 (FIG. 29) at step 510 (FIG. 31).

Following a brief screen in which the user is alerted that the wagering transaction is being sent (e.g., with the message "sending wager"), a confirmatory message, such as message 504 is displayed on screen 506, as shown in FIG. 40. Preferably, as the simulcast of the selected race approaches post time, the screen format assumes the larger, nearly full-screen size of screen 506. The racing video is shown in the central portion of screen 506. A relatively small portion 508 of the screen 506 is used to display the selected bet amount, bet type, and runner(s).

If the user selects another amount 490 (FIG. 39) at step 486 of FIG. 31, then the user can select a new bet amount at step 512 (using a menu such as screen 458 of FIG. 36). Selecting cancel 492 (FIG. 39) returns the user to step 448.

The results of selecting one of the "menu choices" (other track, other race, information, or account) from step 448, 476, 482, or 486, are shown in FIG. 32. If "other track" is selected at step 514, then the user is presented with the menu choices "track" and "menu choice" at step 516. A suitable menu format for selecting a new track is a format such as used for screen 518 in FIG. 41. If a "menu choice" is made, the user returns to step 514.

If "account" is selected by the user at step 514, the user is presented with a menu such as screen 520 of FIG. 42, which prompts the user to enter his personal identification code. The user enters the personal identification code at step 522 (FIG. 32) with user input interface 420 (FIG. 30). During the process of entering the personal identification code, boxes 521 change color to indicate when each code element (e.g. digit) is entered. After the personal identification code has been entered, screen 524 is displayed, as shown in FIG. 43. In screen 524, the user's account balance 526 is shown (as obtained, e.g., from the wagering data management facility 380 of FIG. 29). Also displayed is a menu of fund transfer amounts 528. At step 530 (FIG. 32) the user selects the desired amount of funds to transfer from bank facility 412 (FIG. 29) to his account at wagering data management facility 380 (FIG. 29) by highlighting menu option transfer funds 532 (FIG. 43). Following this selection, a confirmatory message, such as "bank transfer" is displayed. Account balance 526 is updated to reflect the new balance, once the transfer is complete.

If the menu option "information" is selected at step 514 in FIG. 32, the user is given the opportunity to select from the menu options "racing information," "other," and "menu choice" at step 534. If "racing information" is selected, then the user is presented with a list of menu options at step 536. A suitable menu format for displaying the step 536 menu options is screen 538 (FIG. 44), which allows the user to highlight the desired menu option. Four options are listed in the information category portion of screen 538 (FIG. 44). To see additional listings, the user cursors down or up to scroll or page through the listing.

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If the option "late changes/overweights" is selected at step 536 of FIG. 32, then a list of late changes and overweights is displayed at step 538. Scratches are displayed at step 540, when "scratches" is the selected menu option. At step 542, weather information is displayed when that option is selected at step 536. Racing highlights are displayed at step 544 if "highlights" is selected at step 536. Odds are displayed at step 546 if the menu option selected at step 536 is "odds." In addition, scratches are preferably noted on the screens that contain runner numbers (e.g., by the notation "scratch" adjacent to the appropriate runner number). Odds may be displayed using the traditional fractional format (e.g., 9/5) or may be displayed using a percentile format (e.g., 5.0%), as shown in FIG. 45.

Another category of racing information that may be viewed is handicapping information. To view handicapping information, the user selects "handicapping" at step 536. Making the selection "handicapping" moves the user to step 548 in FIG. 33, at which the user chooses between viewing handicapping data and creating a personal power rating. If the user selects "view handicapping data," various handicapping data screens are displayed, showing, for example, snapshot power ratings, speed/class ratings, pace ratings, and jockey/trainer information at step 550.

If "personal power rating" is selected at step 548 (FIG. 33), the user is presented with an opportunity to create his own personal power rating, by entering weights for various handicapping categories. As shown in FIG. 46, a menu of options is preferably displayed using a screen format such as used for screen 552. Handicapping categories include, but are not limited to, speed 554, breeding 556, in-the-money 558, and track condition 560. The current odds (e.g., the win odds) for each runner may also be included as a handicapping category, if desired. Weights are entered by moving a highlighted portion of screen 552 to the desired weight and selecting the highlighted weight with user input interface 420 (FIG. 30). The desired weight for the speed category is selected at step 562 (FIG. 33). The weights for breeding, in-the-money and track condition are entered at steps 564, 566, and 568 (FIG. 33), respectively. The weights chosen on screen 552 of FIG. 46 are: speed 4, breeding 2, in-the-money 5, and track condition 3.

After all weights have been entered, the personal power ratings are displayed at step 570 (FIG. 33). Any suitable display format may be used to display the ratings. For example, the ratings may be displayed numerically, using a bar graph, a pie chart or other graphical display. As shown in FIG. 47, one suitable display is horizontal graph 572. Runners are listed numerically on the left side of graph 572. The corresponding results of the personal power rating selections made in steps 562, 564, 566, and 568 (FIG. 33) are shown numerically on the right side of graph 572. Also shown—in the center of graph 572—are runner icons 574, each horizontally located at a distance from the left edge of graph 572 that is representative of the numerical personal power rating result. After the personal power ratings are displayed at step 570, the system returns to step 548 (when instructed by the user).

User terminal 370 (FIG. 30) performs the calculations necessary to determine the personal power ratings based on the racing data received from racing data interface 372 (FIG. 29) and the selected personal power rating weights. Any suitable method of calculating the power ratings may be used, such as multiplying the weights by a numerical value representative of the runner's strength in the respective categories. For example, in the speed category, the weight of 4 selected in FIG. 46 could be multiplied by the runner's

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percentile ranking in average speed in its most recent races. Alternatively, a predetermined speed power rating could be used. Although screen 552 (FIG. 46) depicts four personal power rating categories, any number of categories may be used, limited only by the amount of statistical racing data available from racing data interface 372 (FIG. 29).

Returning to FIG. 32, if the menu option "other" is selected at step 534, then the user is presented with menu options "racing simulcast schedule," "miscellaneous advertising," "help," and "questionnaire" at step 576. A schedule of which races are being video-simulcast is displayed if "racing simulcast schedule" is selected. Preferably, a user can select from the displayed list of simulcast races. When a particular race is selected from those displayed at step 576, user terminal 122 (FIG. 29) returns the user to step 448 at FIG. 31, where the user is provided with an opportunity to place a wager on the selected race.

If "miscellaneous advertising" is selected at step 576, advertising information is displayed. Help information is displayed if "help" is selected. Because user terminal 370 (FIG. 30) is capable of handling video signals, the advertising information that is provided at step 576 can contain video clips in addition to text information. For example, racing data interface 372 (FIG. 29), racing video source 374 (FIG. 29) or other suitable advertising source may transmit compressed video clips to user terminal 370 of FIG. 30, where they are stored on local mass storage device 578 (FIG. 3) (e.g., a hard disk drive). When advertising, help, or any other information is selected that would benefit from a video presentation, the compressed video signal stored on local mass storage device 578 (FIG. 30) is played back using display and processing circuitry 416 (FIG. 30).

Another menu option that may be selected at step 576 (FIG. 32) is "questionnaire." When this selection is made, user terminals 122 provide an interactive questionnaire on the monitor 378, to which the user may respond, if interested. A typical use for such questionnaires would be to facilitate user feedback. For example, questionnaires may be provided that ask the user which particular services of wagering system 366 (FIG. 1) are of greatest interest, etc. When the questionnaire is completed, the results of the questionnaires may be transmitted to subscriber facility 400 (FIG. 29) using transaction data communications circuitry 422 (FIG. 30) and communication line 402 (FIG. 29).

As described above, a "menu choice" option at step 514 (FIG. 32) is "other track." The selection of another racetrack is illustrated in FIG. 48, in which the racetrack Hollywood Park has been selected. When a new racetrack is selected, the previously selected racetrack 460 (e.g., Churchill Downs in FIG. 36) is replaced with the currently selected racetrack 580. In addition, the currently selected race 582 is automatically updated to reflect the next currently scheduled race to be run at the currently selected racetrack. As shown in FIG. 48, the next race scheduled at Hollywood Park is race 3. The time until post 584 is also automatically updated upon entering the screen 586 to correspond to the next currently scheduled race. Also automatically updated are odds 590 and racing video 592.

If it is desired to change to another race from a screen such as screen 586, which displays the menu choices "other track," "other race," "information," and "account," the user highlights portion 594 of screen 586 corresponding to menu option "other race" at step 514 (FIG. 32). Selecting "other race" at step 514 (FIG. 32) takes the user to step 596 in FIG. 34. A suitable screen for displaying the menu options available at step 596 is screen 598, shown in FIG. 49.

As shown in FIG. 49, a number of viewing options are presented for each race, such as "results," "alert," and "tape/VCR." For races that have been run, the appropriate option is "results," which allows a user to watch an earlier race. If the user selects "results" at step 596 of FIG. 34, the user is presented with the menu option "watch the race" at step 600. A suitable screen for presenting this option to the user is screen 602 of FIG. 50. If the user decides to watch the race and makes the menu selection "watch the race" at step 600 (FIG. 34), a video of the race is displayed at step 602 (FIG. 34) and, if desired, the user may be billed a transaction fee for making this selection. Transaction fees may be levied using any suitable technique. For example, user terminal 370 can maintain a running log of transaction fees charged the user for making selections such as "watch the race," etc. Periodically, this log may be transferred to subscriber facility 400, which compiles a bill for the user, or which debits the user's account (at bank 412 or wagering data management facility 380). The user may also be charged transaction fees for each wager placed at wagering data management facility 380. This type of transaction fee is preferably levied at the time at which the wager is placed, e.g., by debiting the user's account (at wagering data management facility 380 or bank 412) by the transaction fee in addition to the wager amount.

In order to allow the user to watch the results of previously run races, video clips of the races must be stored in a suitable facility and delivered to the user on demand. A variety of arrangements for accomplishing this task are possible. For example, as shown in FIG. 29, a user may place an order for a race video from user terminal 370 via communication line 390. The order is received by transaction data interface 394, which transmits the order and any necessary account verification information to wagering data management system 380. Race video order information can be transmitted to video and data distribution system 368 from wagering data management facility 380 via communication link 398. If it is desired to impose a charge for ordering videos of race results, wagering data management system 380 can debit the user's account accordingly when the order is received.

Video and data distribution system 368 can contain a high capacity storage medium, suitable for recording races as they are received from racing video source 374. In order to minimize the amount of storage necessary in video and data distribution system, it may be desired to record only the video of the race, and not any race previews. It may also be desired to digitally compress the videos.

Various approaches may be used for delivering the race videos that are stored at video and data distribution system 368 to user terminal 370. For example, the sideband or other portion of the bandwidth used by the wagering system 366 to deliver racing data to user terminals 370 may be sufficiently large to support the delivery of compressed video clips in addition to the racing data. If a compressed video clip contains encoded information, only authorized users who selected to watch the race results video will receive that video clip. A similar approach is to send the requested video information over an available video channel to authorized users. A pay-per-view cable channel is also a suitable pathway for providing racing videos to user terminal 370.

Regardless of how user terminal 370 receives the requested prerecorded race video clip, at step 602 (FIG. 34), user terminal 370 displays the video on monitor 378. If necessary, user terminal 370 decompresses any compressed video information.

Different options are available for races that have not yet been run. For example, the user can select "alert" at step 596

(FIG. 34) to be alerted (e.g., by an audible tone and/or a visual prompt on the display screen) that the race is about to be run. If alert is selected at step 596 (FIG. 34), user terminal 370 (FIG. 30) triggers an alarm and displays the race video when appropriate at step 604 (FIG. 34). The user can also select "tape/VCR" at step 596 (FIG. 34). If "tape/VCR" is selected at step 596 (FIG. 34), at step 606 (FIG. 34) user terminal 370 (FIG. 30) programs video recorder 424 (FIG. 30) with the appropriate recording information or actuates video recorder 424 (FIG. 30) at the time of the selected race. Thus, selecting "tape/VCR" allows the selected race to be recorded. When desired, the user can review the race videos recorded by video recorder 424 (FIG. 30). If video recorder 424 (FIG. 30) is capable of transmitting data such as indexing data to user terminal 370 (FIG. 30), user terminal 370 (FIG. 30) can coordinate the playback of race videos.

Any suitable display can be used to present the user with the menu options of step 596 (FIG. 34). In the example of screen 598, the options available for each race appear in bold type, whereas unavailable options appear only faintly. For example, race 1 and race 2 have already been run. Accordingly, results 608 and 610 appear in bold type. Races 3 and 4 have not yet been run so alerts 612 and 614 and tape/VCR 616 and 618 appear in bold.

One skilled in the art will appreciate that the present invention may be practiced by other than the described embodiments, which are presented for purposes of illustration and not of limitation, and the present invention is limited only by the claims that follow.

What is claimed is:

1. A method for providing interactive wagering on races with a user terminal that is remote from any racetrack, comprising:

providing a display of available tracks at which races are to be run;

providing a user with an opportunity to select a given track from the available tracks;

selecting a racing video simulcast corresponding to the given track from a plurality of racing video simulcasts;

providing a display of the racing video simulcast corresponding to the given track; and

providing the user with an opportunity to interactively place a wager on a race to be run at the given track.

2. The method defined in claim 1 further comprising providing a display of racing information corresponding to the next race to be run at the given track when the user selects the given track.

3. The method defined in claim 1 further comprising providing a display of current odds information corresponding to the next race to be run at the given track when the user selects the given track.

4. The method defined in claim 1 further comprising providing a display of information selected from the group consisting of late changes information, overweight information, handicapping information, speed/class ratings information, pace rating information, jockey information, trainer information, weather information, and race results information corresponding to races at the given track.

5. The method defined in claim 1 further comprising providing the user with an opportunity to display help information including information on how to place wagers.

6. An off-track wagering system for providing interactive wagering on races, comprising a user terminal configured to:

provide a display of available tracks at which races are to be run;

provide a user with an opportunity to select a given track from the available tracks;

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select a racing video simulcast corresponding to the given track from a plurality of racing video simulcasts;  
provide a display of the racing video simulcast corresponding to the given track; and  
provide the user with an opportunity to interactively place a wager on a race to be run at the given track. 5  
7. The system defined in claim 6 wherein the user terminal is further configured to provide a display of racing information corresponding to the next race to be run at the given track when the user selects the given track. 10  
8. The system defined in claim 6 wherein the user terminal is further configured to provide a display of current odds information corresponding to the next race to be run at the given track when the user selects the given track. 15  
9. The system defined in claim 6 wherein the user terminal is further configured to provide a display of information selected from the group consisting of late changes information, overweight information, handicapping information, speed/class ratings information, pace rating information, jockey information, trainer information, weather information, and race results information corresponding to races at the given track. 20  
10. The system defined in claim 6 wherein the user terminal is further configured to provide the user with an opportunity to display help information including information on how to place wagers. 25  
11. A system for providing interactive wagering on races with a user terminal that is remote from any racetrack, comprising:  
means for providing a display of available tracks at which races are to be run; 30

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means for providing a user with an opportunity to select a given track from the available tracks;  
means for selecting a racing video simulcast corresponding to the given track from a plurality of racing video simulcasts;  
means for providing a display of the racing video simulcast corresponding to the given track; and  
means for providing the user with an opportunity to interactively place a wager on a race to be run at the given track.  
12. The system defined in claim 11 further comprising means for providing a display of racing information corresponding to the next race to be run at the given track when the user selects the given track.  
13. The system defined in claim 11 further comprising means for providing a display of current odds information corresponding to the next race to be run at the given track when the user selects the given track.  
14. The system defined in claim 11 further comprising means for providing a display of information selected from the group consisting of late changes information, overweight information, handicapping information, speed/class ratings information, pace rating information, jockey information, trainer information, weather information, and race results information corresponding to races at the given track.  
15. The system defined in claim 11 further comprising means for providing the user with an opportunity to display help information including information on how to place wagers.

\* \* \* \* \*

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 6,554,709 B1  
DATED : April 29, 2003  
INVENTOR(S) : Mark A. Brenner et al.

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:

Title page.

Item [56] **References Cited**, OTHER PUBLICATIONS, in citation "A Scenario ...," change "vol." to -- Vol. --; in citation "Are Coin-Op ...," change "vol." to -- Vol. --;

Drawings.

Sheet 20, Fig. 20, change "TRAE" to -- TRACE --;  
Sheet 21, Fig. 21, change "ROJA'S" to -- RAJA'S --;  
Sheet 29, Fig. 29, change "SUBSCSRIBER" to -- SUBSCRIBER --;  
Sheet 34, Fig 34, change "ACTVATE" to -- ACTIVATE --;  
Sheet 37, Fig. 37, change "QUINEILA" to -- QUINELLA --;  
Sheet 50, Fig. 50, change "WACTH" to -- WATCH --;

Column 1.

Line 65, delete second occurrence of "of the";

Column 5.

Line 41, change "show" to -- shown --;

Column 12.

Line 14, change "wager is a an" to -- wager is an --;

Column 15.

Line 48, change "step. 344" to -- step 344 --;

Column 26.

Line 45, change "FIG. 30." to -- (FIG. 30) --.

Signed and Sealed this

Seventh Day of October, 2003

A handwritten signature in black ink, appearing to read "James E. Rogan", with a long horizontal flourish extending to the right.

JAMES E. ROGAN  
*Director of the United States Patent and Trademark Office*