

US Patent & Trademark Office

Patent Public Search | Text View

United States Patent	12394275
Kind Code	B2
Date of Patent	August 19, 2025
Inventor(s)	Attard; Bernadine et al.

Gaming machine and method with a symbol collection feature

Abstract

There is provided a gaming method and system that utilize a presentation assembly configured to present a series of spins of a plurality of reels arranged in an array, the plurality of reels including value-bearing symbols, wherein any value-bearing symbol that lands in an active subset of the array is collected in a collection area. At a conclusion of the series of spins, a payout based on the values of the collected value-bearing symbols is awarded.

Inventors:	Attard; Bernadine (Castlereagh, AU), Little; David (Woollahra, AU)
Applicant:	LNW Gaming, Inc. (Las Vegas, NV)
Family ID:	1000008765602
Assignee:	LNW Gaming, Inc. (Las Vegas, NV)
Appl. No.:	18/734108
Filed:	June 05, 2024

Prior Publication Data

Document Identifier	Publication Date
US 20240321042 A1	Sep. 26, 2024

Related U.S. Application Data

continuation parent-doc US 18315606 20230511 US 12039833 child-doc US 18734108
continuation parent-doc US 17584660 20220126 US 11710370 20230725 child-doc US 18315606

Publication Classification

Int. Cl.: G07F17/32 (20060101)

U.S. Cl.:

CPC **G07F17/3213** (20130101); **G07F17/3258** (20130101); **G07F17/3267** (20130101);

Field of Classification Search

USPC: None

References Cited

U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
3733075	12/1972	Hooker et al.	N/A	N/A
4198052	12/1979	Gauselmann	N/A	N/A
4732386	12/1987	Rayfiel	N/A	N/A
5100137	12/1991	Fulton	N/A	N/A
5152529	12/1991	Okada	N/A	N/A
5205555	12/1992	Hamano	N/A	N/A
5342047	12/1993	Heidel et al.	N/A	N/A
5356140	12/1993	Dabrowski et al.	N/A	N/A
5393061	12/1994	Manship et al.	N/A	N/A
5395111	12/1994	Inoue	N/A	N/A
5431408	12/1994	Adams	N/A	N/A
5511781	12/1995	Wood et al.	N/A	N/A
5618232	12/1996	Martin	N/A	N/A
5695188	12/1996	Ishibashi	N/A	N/A
5704835	12/1997	Dietz	N/A	N/A
5722891	12/1997	Inoue	N/A	N/A
5752881	12/1997	Inoue	N/A	N/A
5766074	12/1997	Cannon et al.	N/A	N/A
5788573	12/1997	Baerlocher et al.	N/A	N/A
5807177	12/1997	Takemoto et al.	N/A	N/A
5810665	12/1997	Takemoto et al.	N/A	N/A
5833537	12/1997	Barrie	N/A	N/A
5848932	12/1997	Adams	N/A	N/A
5855515	12/1998	Pease et al.	N/A	N/A
5876284	12/1998	Acres et al.	N/A	N/A
5882259	12/1998	Holmes et al.	N/A	N/A
5882261	12/1998	Adams	N/A	N/A
5890962	12/1998	Takemoto	N/A	N/A
5911418	12/1998	Adams	N/A	N/A
5947820	12/1998	Morro et al.	N/A	N/A
5951397	12/1998	Dickinson	N/A	N/A
5988638	12/1998	Rodesch et al.	N/A	N/A
6004207	12/1998	Wilson et al.	N/A	N/A
6027115	12/1999	Griswold et al.	N/A	N/A
6033307	12/1999	Vancura	N/A	N/A
6048269	12/1999	Burns et al.	N/A	N/A
6050895	12/1999	Luciano et al.	N/A	N/A

6056642	12/1999	Bennett	N/A	N/A
6089976	12/1999	Schneider et al.	N/A	N/A
6089977	12/1999	Bennett	N/A	N/A
6102798	12/1999	Bennett	N/A	N/A
6120031	12/1999	Adams	N/A	N/A
6142873	12/1999	Weiss et al.	N/A	N/A
6159097	12/1999	Gura	N/A	N/A
6162121	12/1999	Morro et al.	N/A	N/A
6168520	12/2000	Baerlocher et al.	N/A	N/A
6186894	12/2000	Mayeroff	N/A	N/A
6203429	12/2000	Demar et al.	N/A	N/A
6213875	12/2000	Suzuki	N/A	N/A
6224482	12/2000	Bennett	N/A	N/A
6224483	12/2000	Mayeroff	N/A	N/A
6224484	12/2000	Okuda et al.	N/A	N/A
6227971	12/2000	Weiss	N/A	N/A
6241607	12/2000	Payne et al.	N/A	N/A
6251013	12/2000	Bennett	N/A	N/A
6270411	12/2000	Gura et al.	N/A	N/A
6270412	12/2000	Crawford et al.	N/A	N/A
6290600	12/2000	Glasson	N/A	N/A
6309300	12/2000	Glavich	N/A	N/A
6319124	12/2000	Baerlocher et al.	N/A	N/A
6375567	12/2001	Acres	N/A	N/A
6375570	12/2001	Poole	N/A	N/A
6413162	12/2001	Baerlocher et al.	N/A	N/A
6481713	12/2001	Perrie et al.	N/A	N/A
6517432	12/2002	Jaffe	N/A	N/A
6517433	12/2002	Loose et al.	N/A	N/A
6537150	12/2002	Luciano et al.	N/A	N/A
6544120	12/2002	Ainsworth	N/A	N/A
6547242	12/2002	Sugiyama et al.	N/A	N/A
6551187	12/2002	Jaffe	N/A	N/A
6554704	12/2002	Nicastro et al.	N/A	N/A
6558254	12/2002	Baelocher et al.	N/A	N/A
6561900	12/2002	Baerlocher et al.	N/A	N/A
6561904	12/2002	Locke et al.	N/A	N/A
6565434	12/2002	Acres	N/A	N/A
6641477	12/2002	Dietz	N/A	N/A
6652378	12/2002	Cannon et al.	N/A	N/A
6656040	12/2002	Brosnan et al.	N/A	N/A
6657923	12/2002	Laughlin	N/A	N/A
6692356	12/2003	Baerlocher et al.	N/A	N/A
6702675	12/2003	Poole et al.	N/A	N/A
6731313	12/2003	Kaminkow	N/A	N/A
6786818	12/2003	Rothschild et al.	N/A	N/A
6832957	12/2003	Falconer	N/A	N/A
6837790	12/2004	Kaminkow	N/A	N/A
6869360	12/2004	Marks et al.	N/A	N/A
6896617	12/2004	Daly	N/A	N/A

6910962	12/2004	Marks et al.	N/A	N/A
6916243	12/2004	Yoshida	N/A	N/A
6918834	12/2004	Vancura	N/A	N/A
6926609	12/2004	Martin	N/A	N/A
6960134	12/2004	Hartl et al.	N/A	N/A
7018293	12/2005	Brown et al.	N/A	N/A
7029395	12/2005	Baerlocher	N/A	N/A
7029396	12/2005	Jaffe et al.	N/A	N/A
7108602	12/2005	Daly	N/A	N/A
7121945	12/2005	Suganuma et al.	N/A	N/A
7147559	12/2005	Englman	N/A	N/A
7156740	12/2006	Kaminkow	N/A	N/A
7179169	12/2006	Beaulieu et al.	N/A	N/A
7252591	12/2006	Van Asdale	N/A	N/A
7316613	12/2007	Luccesi et al.	N/A	N/A
7351144	12/2007	Daly	N/A	N/A
7361089	12/2007	Daly et al.	N/A	N/A
7371170	12/2007	Cregan et al.	N/A	N/A
7377850	12/2007	Shackelford et al.	N/A	N/A
7431646	12/2007	Jackson	N/A	N/A
7452276	12/2007	Loose et al.	N/A	N/A
7458890	12/2007	Loose et al.	N/A	N/A
7488252	12/2008	Griswold et al.	N/A	N/A
7503847	12/2008	Baerlocher	N/A	N/A
7526736	12/2008	Kaminkow et al.	N/A	N/A
7553231	12/2008	Rodgers et al.	N/A	N/A
7578735	12/2008	Frizzell et al.	N/A	N/A
7601062	12/2008	Cole et al.	N/A	N/A
7604538	12/2008	Pacey	N/A	N/A
7611406	12/2008	Fuller	N/A	N/A
7618319	12/2008	Casey et al.	N/A	N/A
7625278	12/2008	Paulsen et al.	N/A	N/A
7654895	12/2009	Pacey	N/A	N/A
7654899	12/2009	Durham et al.	N/A	N/A
7699699	12/2009	Gilliland et al.	N/A	N/A
7704141	12/2009	Marks et al.	N/A	N/A
7744460	12/2009	Walker et al.	N/A	N/A
7785191	12/2009	Marks et al.	N/A	N/A
7789744	12/2009	Fiden	N/A	N/A
7841934	12/2009	Gauselmann	N/A	N/A
7927204	12/2010	Debrabander, Jr. et al.	N/A	N/A
7950994	12/2010	Berman et al.	N/A	N/A
7980936	12/2010	Mead	N/A	N/A
8021223	12/2010	Rose	N/A	N/A
8021225	12/2010	Okada	N/A	N/A
8057303	12/2010	Rasmussen et al.	N/A	N/A
8066563	12/2010	Schultz et al.	N/A	N/A
8083581	12/2010	Marks et al.	N/A	N/A
8105145	12/2011	Jaffe	N/A	N/A
8105151	12/2011	Caputo et al.	N/A	N/A

8113940	12/2011	Hornik	N/A	N/A
8147322	12/2011	Walker et al.	N/A	N/A
8162740	12/2011	Aoki	N/A	N/A
8162741	12/2011	Wadleigh et al.	N/A	N/A
8192275	12/2011	Aoki et al.	N/A	N/A
8226459	12/2011	Barrett et al.	N/A	N/A
8246442	12/2011	Barrie	N/A	N/A
8272938	12/2011	Gilmore et al.	N/A	N/A
8287357	12/2011	Evans	N/A	N/A
8323091	12/2011	Frank et al.	N/A	N/A
8357041	12/2012	Saunders	N/A	N/A
8360851	12/2012	Aoki et al.	N/A	N/A
8366538	12/2012	Saunders et al.	N/A	N/A
8371930	12/2012	Saunders et al.	N/A	N/A
8388432	12/2012	Mattice et al.	N/A	N/A
8414380	12/2012	Saunders et al.	N/A	N/A
8465358	12/2012	Kemper	N/A	N/A
8496522	12/2012	Caputo et al.	N/A	N/A
8512121	12/2012	Macvittie et al.	N/A	N/A
8512124	12/2012	Bramble et al.	N/A	N/A
8512138	12/2012	Saunders	N/A	N/A
8523659	12/2012	Evans	N/A	N/A
8574059	12/2012	Rodgers et al.	N/A	N/A
8591330	12/2012	Kelly et al.	N/A	N/A
8602868	12/2012	Johnson et al.	N/A	N/A
8608545	12/2012	Arora et al.	N/A	N/A
8662986	12/2013	Rodgers et al.	N/A	N/A
8678908	12/2013	Nicely	N/A	N/A
8690660	12/2013	Saunders et al.	N/A	N/A
8696434	12/2013	Tsukahara	N/A	N/A
8702487	12/2013	Thomas	N/A	N/A
8771054	12/2013	Aoki et al.	N/A	N/A
8790169	12/2013	Saunders	N/A	N/A
8795059	12/2013	Aoki et al.	N/A	N/A
8821254	12/2013	Tsukahara	N/A	N/A
8834258	12/2013	Gobe et al.	N/A	N/A
8851974	12/2013	Caputo et al.	N/A	N/A
8870642	12/2013	Leupp et al.	N/A	N/A
8882578	12/2013	Saunders	N/A	N/A
8961291	12/2014	Dias Pires et al.	N/A	N/A
9005022	12/2014	Saunders	N/A	N/A
9011233	12/2014	Ryan	N/A	N/A
9098847	12/2014	Basallo et al.	N/A	N/A
9098973	12/2014	Basallo et al.	N/A	N/A
9147321	12/2014	Moody	N/A	N/A
9165433	12/2014	Caputo	N/A	N/A
9177447	12/2014	Zoltewicz et al.	N/A	N/A
9202345	12/2014	Zoltewicz et al.	N/A	N/A
9214011	12/2014	Wei et al.	N/A	N/A
9230410	12/2015	Saunders et al.	N/A	N/A

9245421	12/2015	Saunders et al.	N/A	N/A
9251667	12/2015	Marks et al.	N/A	N/A
9257017	12/2015	Saunders et al.	N/A	N/A
9262895	12/2015	Rodgers et al.	N/A	N/A
9275524	12/2015	Nicely	N/A	N/A
9299224	12/2015	Leupp	N/A	N/A
9311781	12/2015	Edwards	N/A	N/A
9349251	12/2015	Caputo et al.	N/A	N/A
9355528	12/2015	Nicely	N/A	N/A
9418521	12/2015	Henrick et al.	N/A	N/A
9424720	12/2015	Suda	N/A	N/A
9430900	12/2015	Zoltewicz et al.	N/A	N/A
9466169	12/2015	Basallo et al.	N/A	N/A
9474972	12/2015	Lenger	N/A	N/A
9495839	12/2015	Aoki et al.	N/A	N/A
9595157	12/2016	Rasmussen et al.	N/A	N/A
9633506	12/2016	Basallo et al.	N/A	N/A
9704342	12/2016	Aoki et al.	N/A	N/A
9928691	12/2017	Olive	N/A	N/A
10013855	12/2017	Nakamura	N/A	N/A
10037651	12/2017	You et al.	N/A	N/A
10043350	12/2017	Gomez et al.	N/A	N/A
10062237	12/2017	Devine et al.	N/A	N/A
10204473	12/2018	Lenger	N/A	N/A
10242533	12/2018	Okada et al.	N/A	N/A
10339761	12/2018	Olive	N/A	N/A
10366575	12/2018	Visser	N/A	N/A
10388112	12/2018	You et al.	N/A	N/A
10410472	12/2018	Moody	N/A	N/A
10417877	12/2018	Gomez et al.	N/A	N/A
10475294	12/2018	Gomez et al.	N/A	N/A
10497203	12/2018	Elmqvist	N/A	N/A
10672220	12/2019	Lenger	N/A	N/A
10706664	12/2019	Boese et al.	N/A	N/A
10726676	12/2019	You et al.	N/A	N/A
10769888	12/2019	You et al.	N/A	N/A
10839648	12/2019	Okada et al.	N/A	N/A
10957161	12/2020	Chesworth et al.	N/A	N/A
11017638	12/2020	Chesworth et al.	N/A	N/A
2001/0021666	12/2000	Yoshida et al.	N/A	N/A
2002/0016200	12/2001	Baerlocher et al.	N/A	N/A
2002/0045474	12/2001	Singer et al.	N/A	N/A
2002/0119818	12/2001	Savio et al.	N/A	N/A
2002/0155881	12/2001	Yoshida	N/A	N/A
2002/0183105	12/2001	Cannon et al.	N/A	N/A
2003/0017865	12/2002	Beaulieu et al.	N/A	N/A
2003/0027619	12/2002	Nicastro, Sr.	N/A	N/A
2003/0035346	12/2002	Laughlin	N/A	N/A
2003/0064782	12/2002	Beaulieu et al.	N/A	N/A
2003/0064801	12/2002	Breckner et al.	N/A	N/A

2003/0064802	12/2002	Rodgers et al.	N/A	N/A
2003/0069063	12/2002	Bilyeu et al.	N/A	N/A
2003/0130034	12/2002	Suganuma et al.	N/A	N/A
2003/0157980	12/2002	Loose et al.	N/A	N/A
2003/0216165	12/2002	Singer et al.	N/A	N/A
2004/0012145	12/2003	Inoue	N/A	N/A
2004/0023714	12/2003	Asdale	N/A	N/A
2004/0043815	12/2003	Kaminkow	N/A	N/A
2004/0048646	12/2003	Visocnik	N/A	N/A
2004/0092315	12/2003	Boyd et al.	N/A	N/A
2004/0137982	12/2003	Cuddy et al.	N/A	N/A
2004/0171417	12/2003	Beaulieu et al.	N/A	N/A
2004/0198489	12/2003	Kaminkow et al.	N/A	N/A
2004/0242313	12/2003	Munoz	N/A	N/A
2005/0054442	12/2004	Anderson et al.	N/A	N/A
2005/0130731	12/2004	Englman et al.	N/A	N/A
2005/0159208	12/2004	Pacey	N/A	N/A
2006/0009286	12/2005	Durham et al.	N/A	N/A
2006/0063588	12/2005	Poole	N/A	N/A
2006/0111173	12/2005	Yang	N/A	N/A
2006/0142080	12/2005	Enzminger	N/A	N/A
2006/0189369	12/2005	Taylor	N/A	N/A
2006/0205469	12/2005	Schultz et al.	N/A	N/A
2006/0247002	12/2005	Yoshimi et al.	N/A	N/A
2007/0060248	12/2006	Rodgers et al.	N/A	N/A
2007/0060255	12/2006	Baerlocher et al.	N/A	N/A
2007/0060275	12/2006	Gilmore et al.	N/A	N/A
2007/0129135	12/2006	Marks et al.	N/A	N/A
2007/0149267	12/2006	Ross et al.	N/A	N/A
2007/0281784	12/2006	Seelig et al.	N/A	N/A
2007/0287529	12/2006	Kojima	N/A	N/A
2008/0003278	12/2007	Mondelo	N/A	N/A
2008/0004532	12/2007	Rubey et al.	N/A	N/A
2008/0032784	12/2007	Englman	N/A	N/A
2008/0045298	12/2007	Yoshizawa	N/A	N/A
2008/0045320	12/2007	Kato	N/A	N/A
2008/0108408	12/2007	Wolf	N/A	N/A
2008/0108411	12/2007	Jensen et al.	N/A	N/A
2008/0108422	12/2007	Hedrick et al.	N/A	N/A
2008/0108431	12/2007	Cuddy et al.	N/A	N/A
2008/0132321	12/2007	Pau	N/A	N/A
2008/0182647	12/2007	Brunet De Courssou et al.	N/A	N/A
2008/0220839	12/2007	Debrabander et al.	N/A	N/A
2008/0274789	12/2007	Singer et al.	N/A	N/A
2009/0036208	12/2008	Pennington et al.	N/A	N/A
2009/0156287	12/2008	Baumgartner	N/A	N/A
2009/0181755	12/2008	Gagner et al.	N/A	N/A
2009/0239634	12/2008	Nguyen	N/A	N/A
2009/0291741	12/2008	Schofield	N/A	N/A

2010/0075737	12/2009	Bluemel	N/A	N/A
2010/0113133	12/2009	Leupp	N/A	N/A
2010/0167815	12/2009	Gagner et al.	N/A	N/A
2010/0203948	12/2009	Falciglia, Sr.	N/A	N/A
2010/0210343	12/2009	Englman et al.	N/A	N/A
2010/0234092	12/2009	Gomez et al.	N/A	N/A
2010/0304832	12/2009	Kup-Ferroth	N/A	N/A
2011/0086695	12/2010	Evans	463/43	G07F 17/32
2011/0244943	12/2010	Milford et al.	N/A	N/A
2011/0300937	12/2010	Crowder, Jr. et al.	N/A	N/A
2012/0015707	12/2011	Hornik et al.	N/A	N/A
2012/0034965	12/2011	Masen et al.	N/A	N/A
2012/0077564	12/2011	Collette et al.	N/A	N/A
2012/0094738	12/2011	Aoki et al.	N/A	N/A
2012/0122532	12/2011	Berman et al.	N/A	N/A
2012/0178517	12/2011	Montenegro et al.	N/A	N/A
2012/0220360	12/2011	Kelly et al.	N/A	N/A
2013/0053124	12/2012	Masen et al.	N/A	N/A
2013/0065663	12/2012	Johnson et al.	N/A	N/A
2013/0102375	12/2012	Aoki et al.	N/A	N/A
2013/0190066	12/2012	Saunders	463/20	G07F 17/3213
2013/0252704	12/2012	Gilbertson et al.	N/A	N/A
2013/0260861	12/2012	Vann et al.	N/A	N/A
2013/0324217	12/2012	Gilbertson et al.	N/A	N/A
2014/0011569	12/2013	Saunders	463/20	G07F 17/32
2014/0014186	12/2013	Bhattacharya et al.	N/A	N/A
2014/0024429	12/2013	Aoki et al.	N/A	N/A
2014/0051496	12/2013	Meyer	N/A	N/A
2014/0141860	12/2013	Meyer	N/A	N/A
2014/0162749	12/2013	Ryan	463/20	G07F 17/3213
2014/0179396	12/2013	Aoki et al.	N/A	N/A
2014/0274292	12/2013	Suda	N/A	N/A
2014/0323198	12/2013	Tuck	N/A	N/A
2015/0031437	12/2014	Gomez et al.	N/A	N/A
2015/0141114	12/2014	Davis	463/20	G07F 17/34
2015/0170462	12/2014	Berman et al.	N/A	N/A
2015/0206386	12/2014	Jaffe et al.	N/A	N/A
2015/0269809	12/2014	Smith	N/A	N/A
2015/0287269	12/2014	Berman	N/A	N/A
2015/0356833	12/2014	Aoki et al.	N/A	N/A
2015/0379831	12/2014	Lee et al.	N/A	N/A
2016/0042597	12/2015	Olive	N/A	N/A
2016/0155303	12/2015	Aoki et al.	N/A	N/A
2017/0154498	12/2016	Olive	N/A	N/A
2017/0301177	12/2016	Pawloski	N/A	G07F 17/3244
2017/0372558	12/2016	You et al.	N/A	N/A
2018/0130303	12/2017	Lamb	N/A	N/A
2018/0268655	12/2017	Olive	N/A	N/A
2018/0268659	12/2017	Chesworth et al.	N/A	N/A
2019/0102992	12/2018	You et al.	N/A	N/A

2019/0236905	12/2018	Washington et al.	N/A	N/A
2024/0054861	12/2023	Leggett	N/A	G07F 17/3267

FOREIGN PATENT DOCUMENTS

Patent No.	Application Date	Country	CPC
2001055957	12/2001	AU	N/A
2013251288	12/2013	AU	N/A
2014202042	12/2013	AU	N/A
2015210489	12/2015	AU	N/A
2097160	12/1981	GB	N/A
2097160	12/1983	GB	N/A
2144568	12/1984	GB	N/A
2144568	12/1984	GB	N/A
2157047	12/1984	GB	N/A
2251112	12/1991	GB	N/A

OTHER PUBLICATIONS

Ancient Arcadia game brochure, Copyright 2011 IGT. cited by applicant
Flying Carpet game brochure, Copyright 2008 Bally. cited by applicant
Golden Knight game brochure, Copyright 2010 IGT. cited by applicant
Sultan of Mars game brochure, Copyright 2011 IGT. cited by applicant
The Amulet and the Charm game brochure, Copyright 2011 IGT. cited by applicant
Product Sheet for “Vikings Creed,” Released Oct. 2020, Slotmill Limited. cited by applicant
“Jack and the Beanstalk” Game Sheet, Copyright 2017 NetEnt Product Services Ltd. cited by applicant

Primary Examiner: Yen; Jason T

Background/Summary

RELATED APPLICATIONS (1) This patent application is a continuation of U.S. patent application Ser. No. 18/315,606, filed May 11, 2023, which is a continuation of U.S. patent application Ser. No. 17/584,660, filed Jan. 26, 2022, now U.S. Pat. No. 11,710,370. Each of the above applications are incorporated herein by reference in its entirety.

COPYRIGHT

(1) A portion of the disclosure of this patent document contains material which is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent disclosure, as it appears in the Patent and Trademark Office patent files or records, but otherwise reserves all copyright rights whatsoever. Copyright 2022-2024, LNW Gaming, Inc.

FIELD OF THE INVENTION

(2) The present invention relates to a technological improvement to gaming systems, gaming machines, and methods and, more particularly, to new and improved animations in connection with a feature in which value-bearing symbols are collected from a subset of an array of symbols, the sum of their values awarded at the conclusion of the collection process.

BACKGROUND OF THE INVENTION

(3) The gaming industry depends upon player participation. Players are generally “hopeful” players who either think they are lucky or at least think they can get lucky—for a relatively small

investment to play a game, they can get a disproportionately large return. To create this feeling of luck, a gaming apparatus relies upon an internal or external random element generator to generate one or more random elements such as random numbers. The gaming apparatus determines a game outcome based, at least in part, on the one or more random elements.

(4) A significant technical challenge is to improve the operation of gaming apparatus and games played thereon, including the manner in which they leverage the underlying random element generator, by making them yield a negative return on investment in the long run (via a high quantity and/or frequency of player/apparatus interactions) and yet random and volatile enough to make players feel they can get lucky and win in the short run. Striking the right balance between yield versus randomness and volatility to create a feeling of luck involves addressing many technical problems, some of which can be at odds with one another. This luck factor is what appeals to core players and encourages prolonged and frequent player participation. As the industry matures, the creativity and ingenuity required to improve such operation of gaming apparatus and games grows accordingly.

(5) Another significant technical challenge is to improve the operation of gaming apparatus and games played thereon by increasing processing speed and efficiency of usage of processing and/or memory resources. To make games more entertaining and exciting, they often offer the complexities of advanced graphics and special effects, multiple bonus features with different game formats, and multiple random outcome determinations per feature. The game formats may, for example, include picking games, reel spins, wheel spins, and other arcade-style play mechanics. Inefficiencies in processor execution of the game software can slow play of the game and prevent a player from playing the game at their desired pace.

(6) Yet another significant technical challenge is to provide a new and improved level of game play that uses new and improved gaming apparatus animations. Improved animations represent improvements to the underlying technology or technical field of gaming apparatus and, at the same time, have the effect of encouraging prolonged and frequent player participation.

SUMMARY OF THE INVENTION

(7) According to an embodiment of the present invention, there is provided gaming methods and a system that utilize a presentation assembly configured to present a series of spins of a plurality of reels arranged in an array, the plurality of reels including value-bearing symbols, wherein any value-bearing symbol that lands in an active subset of the array is collected in a collection area. At a conclusion of the series of spins, a payout based on the values of the collected value-bearing symbols is awarded.

(8) Additional aspects of the invention will be apparent to those of ordinary skill in the art in view of the detailed description of various embodiments, which is made with reference to the drawings, a brief description of which is provided below.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. 1 is a perspective view of a free-standing gaming machine according to an embodiment of the present invention.

(2) FIG. 2 is a schematic view of a gaming system according to an embodiment of the present invention.

(3) FIG. 3 is a flowchart for a data processing method that corresponds to instructions executed by a controller, according to an embodiment of the present invention.

(4) FIGS. 4-11 illustrate examples of game presentations corresponding to various steps presented in FIG. 3.

(5) While the invention is susceptible to various modifications and alternative forms, specific

embodiments have been shown by way of example in the drawings and will be described in detail herein. It should be understood, however, that the invention is not intended to be limited to the particular forms disclosed. Rather, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION

(6) While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated. For purposes of the present detailed description, the singular includes the plural and vice versa (unless specifically disclaimed); the words “and” and “or” shall be both conjunctive and disjunctive; the word “all” means “any and all”; the word “any” means “any and all”; and the word “including” means “including without limitation.”

(7) For purposes of the present detailed description, the terms “wagering game,” “casino wagering game,” “gambling,” “slot game,” “casino game,” and the like include games in which a player places at risk a sum of money or other representation of value, whether or not redeemable for cash, on an event with an uncertain outcome, including without limitation those having some element of skill. In some embodiments, the wagering game involves wagers of real money, as found with typical land-based or online casino games. In other embodiments, the wagering game additionally, or alternatively, involves wagers of non-cash values, such as virtual currency, and therefore may be considered a social or casual game, such as would be typically available on a social networking web site, other web sites, across computer networks, or applications on mobile devices (e.g., phones, tablets, etc.). When provided in a social or casual game format, the wagering game may closely resemble a traditional casino game, or it may take another form that more closely resembles other types of social/casual games.

(8) Referring to FIG. 1, there is shown a gaming machine **10** similar to those operated in gaming establishments, such as casinos. With regard to the present invention, the gaming machine **10** may be any type of gaming terminal or machine and may have varying structures and methods of operation. For example, in some aspects, the gaming machine **10** is an electromechanical gaming terminal configured to play mechanical slots, whereas in other aspects, the gaming machine is an electronic gaming terminal configured to play a video casino game, such as slots, keno, poker, blackjack, roulette, craps, etc. The gaming machine **10** may take any suitable form, such as floor-standing models as shown, handheld mobile units, bartop models, workstation-type console models, etc. Further, the gaming machine **10** may be primarily dedicated for use in playing wagering games, or may include non-dedicated devices, such as mobile phones, personal digital assistants, personal computers, etc. Exemplary types of gaming machines are disclosed in U.S. Pat. Nos. 6,517,433, 8,057,303, and 8,226,459, which are incorporated herein by reference in their entireties.

(9) The gaming machine **10** illustrated in FIG. 1 comprises a gaming cabinet **12** that securely houses various input devices, output devices, input/output devices, internal electronic/electromechanical components, and wiring. The cabinet **12** includes exterior walls, interior walls and shelves for mounting the internal components and managing the wiring, and one or more front doors that are locked and require a physical or electronic key to gain access to the interior compartment of the cabinet **12** behind the locked door. The cabinet **12** forms an alcove **14** configured to store one or more beverages or personal items of a player. A notification mechanism **16**, such as a candle or tower light, is mounted to the top of the cabinet **12**. It flashes to alert an attendant that change is needed, a hand pay is requested, or there is a potential problem with the gaming machine **10**.

(10) The input devices, output devices, and input/output devices are disposed on, and securely coupled to, the cabinet **12**. By way of example, the output devices include a primary presentation

device **18**, a secondary presentation device **20**, and one or more audio speakers **22**. The primary presentation device **18** or the secondary presentation device **20** may be a mechanical-reel display device, a video display device, or a combination thereof. In one such combination disclosed in U.S. Pat. No. 6,517,433, a transmissive video display is disposed in front of the mechanical-reel display to portray a video image superimposed upon electro-mechanical reels. In another combination disclosed in U.S. Pat. No. 7,654,899, a projector projects video images onto stationary or moving surfaces. In yet another combination disclosed in U.S. Pat. No. 7,452,276, miniature video displays are mounted to electro-mechanical reels and portray video symbols for the game. In a further combination disclosed in U.S. Pat. No. 8,591,330, flexible displays such as OLED or e-paper displays are affixed to electro-mechanical reels. The aforementioned U.S. Pat. Nos. 6,517,433, 7,654,899, 7,452,276, and 8,591,330 are incorporated herein by reference in their entireties.

(11) The presentation devices **18**, **20**, the audio speakers **22**, lighting assemblies, and/or other devices associated with presentation are collectively referred to as a “presentation assembly” of the gaming machine **10**. The presentation assembly may include one presentation device (e.g., the primary presentation device **18**), some of the presentation devices of the gaming machine **10**, or all of the presentation devices of the gaming machine **10**. The presentation assembly may be configured to present a unified presentation sequence formed by visual, audio, tactile, and/or other suitable presentation means, or the devices of the presentation assembly may be configured to present respective presentation sequences or respective information.

(12) The presentation assembly, and more particularly the primary presentation device **18** and/or the secondary presentation device **20**, variously presents information associated with wagering games, non-wagering games, community games, progressives, advertisements, services, premium entertainment, text messaging, emails, alerts, announcements, broadcast information, subscription information, etc. appropriate to the particular mode(s) of operation of the gaming machine **10**. The gaming machine **10** may include a touch screen(s) **24** mounted over the primary or secondary presentation devices, buttons **26** on a button panel, a bill/ticket acceptor **28**, a card reader/writer **30**, a ticket dispenser **32**, and player-accessible ports (e.g., audio output jack for headphones, video headset jack, USB port, wireless transmitter/receiver, etc.). It should be understood that numerous other peripheral devices and other elements exist and are readily utilizable in any number of combinations to create various forms of a gaming machine in accord with the present concepts.

(13) The player input devices, such as the touch screen **24**, buttons **26**, a mouse, a joystick, a gesture-sensing device, a voice-recognition device, and a virtual-input device, accept player inputs and transform the player inputs to electronic data signals indicative of the player inputs, which correspond to an enabled feature for such inputs at a time of activation (e.g., pressing a “Max Bet” button or soft key to indicate a player's desire to place a maximum wager to play the wagering game). The inputs, once transformed into electronic data signals, are output to game-logic circuitry for processing. The electronic data signals are selected from a group consisting essentially of an electrical current, an electrical voltage, an electrical charge, an optical signal, an optical element, a magnetic signal, and a magnetic element.

(14) The gaming machine **10** includes one or more value input/payment devices and value output/payout devices. In order to deposit cash or credits onto the gaming machine **10**, the value input devices are configured to detect a physical item associated with a monetary value that establishes a credit balance on a credit meter such as the “credits” meter **200** (see FIGS. 4-8). The physical item may, for example, be currency bills, coins, tickets, vouchers, coupons, cards, and/or computer-readable storage mediums. The deposited cash or credits are used to fund wagers placed on the wagering game played via the gaming machine **10**. Examples of value input devices include, but are not limited to, a coin acceptor, the bill/ticket acceptor **28**, the card reader/writer **30**, a wireless communication interface for reading cash or credit data from a nearby mobile device, and a network interface for withdrawing cash or credits from a remote account via an electronic funds transfer. In response to a cashout input that initiates a payout from the credit balance on the

“credits” meter **200** (see FIGS. 4-8), the value output devices are used to dispense cash or credits from the gaming machine **10**. The credits may be exchanged for cash at, for example, a cashier or redemption station. Examples of value output devices include, but are not limited to, a coin hopper for dispensing coins or tokens, a bill dispenser, the card reader/writer **30**, the ticket dispenser **32** for printing tickets redeemable for cash or credits, a wireless communication interface for transmitting cash or credit data to a nearby mobile device, and a network interface for depositing cash or credits to a remote account via an electronic funds transfer.

(15) Turning now to FIG. 2, there is shown a block diagram of the gaming-machine architecture. The gaming machine **10** includes game-logic circuitry **40** securely housed within a locked box inside the gaming cabinet **12** (see FIG. 1). The game-logic circuitry **40** includes a central processing unit (CPU) **42** connected to a main memory **44** that comprises one or more memory devices. The CPU **42** includes any suitable processor(s), such as those made by Intel and AMD. By way of example, the CPU **42** includes a plurality of microprocessors including a master processor, a slave processor, and a secondary or parallel processor. Game-logic circuitry **40**, as used herein, comprises any combination of hardware, software, or firmware disposed in or outside of the gaming machine **10** that is configured to communicate with or control the transfer of data between the gaming machine **10** and a bus, another computer, processor, device, service, or network. The game-logic circuitry **40**, and more specifically the CPU **42**, comprises one or more controllers or processors and such one or more controllers or processors need not be disposed proximal to one another and may be located in different devices or in different locations. The game-logic circuitry **40**, and more specifically the main memory **44**, comprises one or more memory devices which need not be disposed proximal to one another and may be located in different devices or in different locations. The game-logic circuitry **40** is operable to execute all of the various gaming methods and other processes disclosed herein. The main memory **44** includes a wagering-game unit **46**. In one embodiment, the wagering-game unit **46** causes wagering games to be presented, such as video poker, video blackjack, video slots, video lottery, etc., in whole or part.

(16) The game-logic circuitry **40** is also connected to an input/output (I/O) bus **48**, which can include any suitable bus technologies, such as an AGTL+frontside bus and a PCI backside bus. The I/O bus **48** is connected to various input devices **50**, output devices **52**, and input/output devices **54** such as those discussed above in connection with FIG. 1. The I/O bus **48** is also connected to a storage unit **56** and an external-system interface **58**, which is connected to external system(s) **60** (e.g., wagering-game networks).

(17) The external system **60** includes, in various aspects, a gaming network, other gaming machines or terminals, a gaming server, a remote controller, communications hardware, or a variety of other interfaced systems or components, in any combination. In yet other aspects, the external system **60** comprises a player's portable electronic device (e.g., cellular phone, electronic wallet, etc.) and the external-system interface **58** is configured to facilitate wireless communication and data transfer between the portable electronic device and the gaming machine **10**, such as by a near-field communication path operating via magnetic-field induction or a frequency-hopping spread spectrum RF signals (e.g., Bluetooth, etc.).

(18) The gaming machine **10** optionally communicates with the external system **60** such that the gaming machine **10** operates as a thin, thick, or intermediate client. The game-logic circuitry **40**—whether located within (“thick client”), external to (“thin client”), or distributed both within and external to (“intermediate client”) the gaming machine **10**—is utilized to provide a wagering game on the gaming machine **10**. In general, the main memory **44** stores programming for a random number generator (RNG), game-outcome logic, and game assets (e.g., art, sound, etc.)—all of which obtained regulatory approval from a gaming control board or commission and are verified by a trusted authentication program in the main memory **44** prior to game execution. The authentication program generates a live authentication code (e.g., digital signature or hash) from the memory contents and compare it to a trusted code stored in the main memory **44**. If the codes

match, authentication is deemed a success and the game is permitted to execute. If, however, the codes do not match, authentication is deemed a failure that must be corrected prior to game execution. Without this predictable and repeatable authentication, the gaming machine **10**, external system **60**, or both are not allowed to perform or execute the RNG programming or game-outcome logic in a regulatory-approved manner and are therefore unacceptable for commercial use. In other words, through the use of the authentication program, the game-logic circuitry facilitates operation of the game in a way that a person making calculations or computations could not.

(19) When a wagering-game instance is executed, the CPU **42** (comprising one or more processors or controllers) executes the RNG programming to generate one or more pseudo-random numbers. The pseudo-random numbers are divided into different ranges, and each range is associated with a respective game outcome. Accordingly, the pseudo-random numbers are utilized by the CPU **42** when executing the game-outcome logic to determine a resultant outcome for that instance of the wagering game. The resultant outcome is then presented to a player of the gaming machine **10** by accessing the associated game assets, required for the resultant outcome, from the main memory **44**. The CPU **42** causes the game assets to be presented to the player as outputs from the gaming machine **10** (e.g., audio and video presentations). Instead of a pseudo-RNG, the game outcome may be derived from random numbers generated by a physical RNG that measures some physical phenomenon that is expected to be random and then compensates for possible biases in the measurement process. Whether the RNG is a pseudo-RNG or physical RNG, the RNG uses a seeding process that relies upon an unpredictable factor (e.g., human interaction of turning a key) and cycles continuously in the background between games and during game play at a speed that cannot be timed by the player. Accordingly, the RNG cannot be carried out manually by a human and is integral to operating the game.

(20) The gaming machine **10** may be used to play central determination games, such as electronic pull-tab and bingo games. In an electronic pull-tab game, the RNG is used to randomize the distribution of outcomes in a pool and/or to select which outcome is drawn from the pool of outcomes when the player requests to play the game. In an electronic bingo game, the RNG is used to randomly draw numbers that players match against numbers printed on their electronic bingo card.

(21) The gaming machine **10** may include additional peripheral devices or more than one of each component shown in FIG. **2**. Any component of the gaming-machine architecture includes hardware, firmware, or tangible machine-readable storage media including instructions for performing the operations described herein. Machine-readable storage media includes any mechanism that stores information and provides the information in a form readable by a machine (e.g., gaming terminal, computer, etc.). For example, machine-readable storage media includes read only memory (ROM), random access memory (RAM), magnetic-disk storage media, optical storage media, flash memory, etc.

(22) In accord with various methods of conducting a wagering game on a gaming system in accord with the present concepts, the wagering game includes a game sequence in which a player makes a wager and a wagering-game outcome is provided or displayed in response to the wager being received or detected. The wagering-game outcome, for that particular wagering-game instance, is then revealed to the player in due course following initiation of the wagering game. The method comprises the acts of conducting the wagering game using a gaming apparatus, such as the gaming machine **10** depicted in FIG. **1**, following receipt of an input from the player to initiate a wagering-game instance. The gaming machine **10** then communicates the wagering-game outcome to the player via one or more output devices (e.g., primary presentation device **18** or secondary presentation device **20**) through the presentation of information such as, but not limited to, text, graphics, static images, moving images, etc., or any combination thereof. In accord with the method of conducting the wagering game, the game-logic circuitry **40** transforms a physical player input, such as a player's pressing of a "Spin" touch key or button, into an electronic data signal

indicative of an instruction relating to the wagering game (e.g., an electronic data signal bearing data on a wager amount).

(23) In the aforementioned method, for each data signal, the game-logic circuitry **40** is configured to process the electronic data signal, to interpret the data signal (e.g., data signals corresponding to a wager input), and to cause further actions associated with the interpretation of the signal in accord with stored instructions relating to such further actions executed by the controller. As one example, the CPU **42** causes the recording of a digital representation of the wager in one or more storage media (e.g., storage unit **56**), the CPU **42**, in accord with associated stored instructions, causes the changing of a state of the storage media from a first state to a second state. This change in state is, for example, effected by changing a magnetization pattern on a magnetically coated surface of a magnetic storage media or changing a magnetic state of a ferromagnetic surface of a magneto-optical disc storage media, a change in state of transistors or capacitors in a volatile or a non-volatile semiconductor memory (e.g., DRAM, etc.). The noted second state of the data storage media comprises storage in the storage media of data representing the electronic data signal from the CPU **42** (e.g., the wager in the present example). As another example, the CPU **42** further, in accord with the execution of the stored instructions relating to the wagering game, causes the primary presentation device **18**, other presentation device, or other output device (e.g., speakers, lights, communication device, etc.) to change from a first state to at least a second state, wherein the second state of the primary presentation device comprises a visual representation of the physical player input (e.g., an acknowledgement to a player), information relating to the physical player input (e.g., an indication of the wager amount), a game sequence, an outcome of the game sequence, or any combination thereof, wherein the game sequence in accord with the present concepts comprises acts described herein. The aforementioned executing of the stored instructions relating to the wagering game is further conducted in accord with a random outcome (e.g., determined by the RNG) that is used by the game-logic circuitry **40** to determine the outcome of the wagering-game instance. In at least some aspects, the game-logic circuitry **40** is configured to determine an outcome of the wagering-game instance at least partially in response to the random parameter.

(24) In one embodiment, the gaming machine **10** and, additionally or alternatively, the external system **60** (e.g., a gaming server), means gaming equipment that meets the hardware and software requirements for fairness, security, and predictability as established by at least one state's gaming control board or commission. Prior to commercial deployment, the gaming machine **10**, the external system **60**, or both and the casino wagering game played thereon may need to satisfy minimum technical standards and require regulatory approval from a gaming control board or commission (e.g., the Nevada Gaming Commission, Alderney Gambling Control Commission, National Indian Gaming Commission, etc.) charged with regulating casino and other types of gaming in a defined geographical area, such as a state. By way of non-limiting example, a gaming machine in Nevada means a device as set forth in NRS 463.0155, 463.0191, and all other relevant provisions of the Nevada Gaming Control Act, and the gaming machine cannot be deployed for play in Nevada unless it meets the minimum standards set forth in, for example, Technical Standards 1 and 2 and Regulations 5 and 14 issued pursuant to the Nevada Gaming Control Act. Additionally, the gaming machine and the casino wagering game must be approved by the commission pursuant to various provisions in Regulation 14. Comparable statutes, regulations, and technical standards exist in other gaming jurisdictions. As can be seen from the description herein, the gaming machine **10** may be implemented with hardware and software architectures, circuitry, and other special features that differentiate it from general-purpose computers (e.g., desktop PCs, laptops, and tablets).

(25) Referring now to FIG. **3**, there is shown a flowchart representing one data processing method corresponding to at least some instructions stored and executed by the game-logic circuitry **40** in FIG. **2** to perform operations according to an embodiment of the present invention. The data

processing method is described below in connection with an exemplary representation of a set of game presentations in FIGS. 4-11.

(26) The data processing method commences at step **100**. At step **102**, the game-logic circuitry controls one or more presentation devices (e.g., mechanical-reel display device, video display device, or a combination thereof) that presents a plurality of symbol-bearing reels and an array of symbol positions. Although the method is described with respect to one presentation device, it is to be understood that the presentation described herein may be performed by a presentation assembly including more than one presentation device. The symbol positions of the array may be arranged in a variety of configurations, formats, or structures and may comprise a plurality of rows and columns. The rows of the array are oriented in a generally horizontal direction, and the columns of the array are oriented in a generally vertical direction. The symbol positions in each row of the array are horizontally aligned with each other, and the symbol positions in each column of the array are vertically aligned with each other. The number of symbol positions in different rows and/or different columns may vary from each other. The reels may be associated with the respective columns of the array such that the reels spin vertically and each reel populates a respective column. In another embodiment, the reels may be associated with the respective rows of the array such that the reels spin horizontally and each reel populates a respective row. In yet another embodiment, the reels may be associated with respective individual symbol positions of the array such that each reel populates only its respective symbol position.

(27) In the examples shown in FIGS. 4-11, the presentation device presents a three-by-five array **230** comprising three rows **220**, **222**, **224** and five columns **210**, **212**, **214**, **216**, **218**. Each column is associated with a respective reel such that the reel populates the three symbol positions in the associated column. The reels bear a plurality of symbols. In one embodiment, the plurality of symbols include standard symbols A, B, C, D, E, and F and value-bearing symbols V. Each value-bearing symbol V is associated with a credit or currency value indicated on the symbol itself. The value on a particular symbol V may be fixed or variable (e.g., random) from one game cycle to the next. Different value-bearing symbols V on the reels may have different values. In one or more embodiments, a value-bearing symbol V may be associated with a value determined separately. For example, rather than a specific amount, a GRAND, MAJOR, MINOR, or MINI progressive label may be indicated on a value-bearing symbol V. Each reel may contain one or more stacks (i.e., clumps) of value-bearing symbols V that appear adjacent to each other along the reel. The values of the value-bearing symbols V in any given stack may be the same or different. A stack of value-bearing symbols V may consist of two, three, four, or more adjacent symbols V. Further, adjacent reels may contain one or more “mega” value-bearing symbols V that move as one block as the reels spin. When the spin is complete, each individual row and column of the array underlying any visible portion of the “mega” symbol is assigned the value associated with the “mega” value-bearing symbol. For example, a “mega” value bearing symbol may comprise a two row high square spanning columns **212** and **214**. If this symbol stops aligned with rows **220** and **222**, the symbols at row **220**, column **212**, row **220**, column **214**, row **222**, column **212** and row **222**, column **214** would all be treated as though individual value-bearing symbols V having the value of the “mega” symbol had landed in those locations.

(28) Returning to FIG. 3, at step **104**, the game-logic circuitry detects, via a value input device, a physical item associated with a monetary value that establishes a credit balance. As shown in FIGS. 4-11, the credit balance may be shown on a credit meter **200** of the gaming machine.

(29) At step **106**, the game-logic circuitry initiates a wagering game cycle in response to an input indicative of a wager covered by the credit balance. To initiate a spin of the reels, the player may press a “Spin” or “Max Bet” key on a button panel or touch screen. As shown in FIGS. 4-11, the wager may be shown on a bet meter **202**.

(30) At step **108**, using an RNG, the game-logic circuitry spins and stops the reels to randomly land symbols from the reels in the array in visual association with one or more pay lines (also known as

lines, ways, patterns, or arrangements). The reel spin may be animated on a video display by depicting symbol-bearing strips moving vertically across the display and synchronously updating the symbols visible on each strip as the strip moves across the display.

(31) The method illustrated describes a base game and a bonus game triggered during play of the underlying base game. In one or more alternate embodiments, the concepts of collecting value-bearing symbols from within an active subset of an array may apply to a base game, a bonus game, or both. The bonus game may be a series of free spins utilizing steps **102** and **112** through **128** of the method in FIG. 3. The number of free spins may be fixed or variable, but in the illustrated embodiment, when the bonus game commences, a spin counter may be initialized to a reset value, such as three. The spin counter decrements after each free spin but may be reset whenever a value-bearing symbol lands in the active subset of the bonus array (which will be shown later during the discussion of step **126**). The series of free spins continues until the spin counter reaches zero, at which point the bonus game ends and the method returns to the base game.

(32) At step **110**, the game logic circuitry awards standard pays in accordance with a pay table. The pay table may, for example, include “line pays” and “scatter pays.” Line pays occur when a predetermined type and number of symbols appear along an activated payline, typically in a particular order such as left to right, right to left, top to bottom, bottom to top, etc. Scatter pays occur when a predetermined type and number of symbols appear anywhere in the displayed array without regard to position or paylines. Each payline preferably consists of a single symbol position in each column of the array. The number of paylines may be as few as one or as many as possible given each payline consists of a single symbol position in each column of the array. To animate a standard pay, the display may apply a border, pattern, color change, background change, watermark, or other distinguishing characteristic to the winning payline and/or winning symbols that contributed to the pay. In the example shown in FIG. 4, standard pays are limited to line pays along three horizontal paylines starting from the leftmost reel: a first payline spanning the middle row **222** of the array **230**, a second payline spanning the top row **220** of the array **230**, and a third payline spanning the bottom row **224** of the array **230**. FIG. 4, for example, depicts a line pay of five D symbols along the bottom row **224** of the array **230**. The awarded pays are added to the win meter **204** and the game logic circuitry proceeds to step **112**.

(33) At step **112**, the game-logic circuitry determines whether a bonus triggering event has occurred. In the embodiment shown, the triggering event comprises at least a certain number of value-bearing symbols V landing in the array in the current game cycle, for example, 4. In one or more alternate embodiments, the game-logic circuitry may employ other means to determine a triggering event for the bonus. For example, without limitation, the triggering event may be based on a random determination using the RNG, when one or more scattered non-value-bearing symbols appear, after a certain number of base game non-bonus spins have occurred, etc. If no triggering event has occurred, for example, the array does not contain a sufficient number of value-bearing symbols V, as shown in FIG. 4, the game-logic circuitry immediately proceeds to step **132**.

(34) If, however, a triggering event has occurred, the game-logic circuitry instead continues step **114**, where it initializes a bonus spin counter **232** to a reset amount, for example, 3. In the illustrated embodiment, 4 or more value-bearing symbols V trigger the bonus. At step **116**, these triggering symbols are moved to a collection area, their values to be awarded at the conclusion of the bonus. By way of example, if the spin generates the array of symbols shown in FIG. 5 (which includes 4 value-bearing symbols in columns **212**, **214** and **216**), the game-logic circuitry removes the value-bearing symbols from the array to the collection area **234**, as shown in FIG. 6. To animate this collection, the display may apply a border, pattern, color change, background change, watermark, or other distinguishing characteristic to the value-bearing symbols in the array and then individually animate moving each value-bearing symbol from its place in the array to the collection area **234**.

(35) At step **118**, the game-logic circuitry designates certain columns as an active subset of the

bonus array. In the illustrated embodiment, the active subset is randomly selected at step **116** prior to each bonus spin. For example, as illustrated in FIGS. **7-8**, columns **212-216** are the active subset; in FIG. **9**, column **216** is the active subset; in FIG. **10**, columns **212-214** are the active subset and, in FIG. **11**, columns **214-216** are the active subset. In alternate embodiments, the active subset may be selected once and remain fixed for all bonus spins or some other method, without limitation, may be used to determine the active subset of the bonus array.

(36) At step **120**, again using the RNG, the game-logic circuitry spins and stops the reels to randomly land value-bearing symbols from the reels in the bonus array. As above, the reel spin may be animated on a video display by depicting symbol-bearing strips moving vertically across the display and synchronously updating the symbols visible on each strip as the strip moves across the display. At the conclusion of the bonus spin, the bonus spin counter is decremented at step **122**, as shown in FIG. **7**.

(37) At step **124**, the game-logic circuitry determines whether or not the active portion of the bonus array contains a value-bearing symbol V. If not, the game-logic circuitry proceeds to step **128**.

(38) If, however, by way of example, the spin generates the array of symbols shown in FIG. **7** (which includes value-bearing symbols in columns **212** and **216**), the game-logic circuitry, at step **126**, moves the two value-bearing symbols V to the collection area **234** (see FIG. **8**). Again, to animate this collection, the display may apply a border, pattern, color change, background change, watermark, or other distinguishing characteristic to the value-bearing symbols in the active subset and then individually animate moving each value-bearing symbol from its place in the array to the collection area **234**. Because one or more value-bearing symbols V were collected, the game logic circuitry also resets the spin counter **232** to its reset value, in this case, 3. FIG. **8** illustrates the conclusion of the collection and counter-resetting process. The number of value-bearing symbols V in the collection area **234** has increased from 4 (in FIG. **6**) to 6 and the spin counter has been reset from 2 (in FIG. **7**) to 3. It should be noted that the value-bearing symbol V in column **218** of FIG. **7**. was ignored because it was not in the active portion of the bonus array, columns **212-216**.

However, as described above, in some embodiments, value-bearing symbols V that land outside the active subset of the array may also be collected if certain conditions are met.

(39) At step **128**, the game logic circuitry determines whether any bonus spins remain on the spin counter. If so, it returns for another bonus spin starting at step **118**. (See FIGS. **9-11**) However, if no bonus spins remain, it sums the values of each of the collected value bearing symbols in the collection area **234** at step **130**. As noted above, these may be amounts directly indicated on the collected value-bearing symbols V or, if the indicated amount was an indirect amount (such as a reference to a progressive award), the value of the indirect amount is resolved and added to the sum. The total is then awarded by displaying it on the win meter **202** and adding it to the credit meter **200**. At this point, the game circuit logic terminates the bonus spins and proceeds to step **132**.

(40) At step **132**, the game-logic circuitry determines whether it has received a cashout input via at least one of the one or more player input devices of the gaming machine. If it has not received a cashout input, the game-logic circuitry waits for the next wager input at step **106**. If it has received a cashout input, the game-logic circuitry initiates a payout from the credit balance on the credit meter such as the meter **200** in FIGS. **4-11** and the data processing method ends at step **134**.

(41) In the description of each of FIGS. **4-11** below, reference is made to certain applicable steps from FIG. **3**.

(42) Referring to FIG. **4**, which illustrates an example of the display at the conclusion of a representative base game spin (steps **106-108**): The appearance of five D symbols in row **224** (step **108**) may generate a standard pay award (step **110**). Three value-bearing symbols V landed in columns **212**, **214**, and **216** (step **108**). Because there are less than 4 value-bearing symbols in the array (step **112**), there are not enough trigger symbols to trigger a series of bonus spins.

(43) Referring to FIG. **5**, which illustrates the display at the conclusion of a second base game spin (steps **106-108**): Four value-bearing symbols V landed in columns **212**, **214**, and **216** (step **108**).

No standard pays appear in array **230** (step **110**).

(44) Referring to FIG. **6**, which further illustrates changes to the display resulting from the second base game spin shown in FIG. **5**: Because there were 4 or more value-bearing symbols in the array (step **112**) shown in FIG. **5**, there were enough trigger symbols to trigger a bonus game. The four value-bearing symbols **V** shown in the array in FIG. **5** have been moved to collection area **234** (step **116**). The bonus spin counter **232** has been initialized to 3 (step **114**) in preparation for a series of bonus spins.

(45) Referring to FIG. **7**, which illustrates an example of the display at the conclusion of a representative first bonus spin (steps **114-126**): The broken lines to left of column **212** and to the right of column **216** indicate that columns **212**, **214** and **216** had been selected as the active subset of the bonus array (step **118**). This is merely an example; any indication of the current active subset of the bonus array may be used. The entire array was populated with new symbols by using the RNG to spin and stop the reels in columns **210-218** (step **120**). In the examples shown in FIGS. **7-11**, during bonus spins, only value-bearing symbols are being used on the reels, however, in alternate embodiments, the reels may be populated with a mix of standard symbols and value-bearing symbols **V**. (See FIGS. **4-6**.) Two value-bearing symbols **V** (one in column **212** and one in column **216**) landed in the active subset of the bonus array, columns **212-216**. A third value bearing symbol **V** landed in column **220**, which is in the inactive subset of the bonus array. Note that it is possible that “mega” value-bearing symbols **V** may land only partially in the active subset of the bonus array. In this embodiment, only the underlying symbol locations within the active subset of the bonus array are considered for the purposes of value-bearing symbol **V** collection. In one or more other embodiments, all symbol locations underlying the “mega” value bearing symbol **V** may be considered for the purposes of value-bearing symbol collection, even though some of them may fall outside of the active subset columns. In still other embodiments, under certain conditions, all value-bearing symbols **V** in the bonus array, whether within the active subset or not, may be collectable. For example, an additional “collect all” symbol may be added to the symbols used during the bonus. If this symbol lands within the bonus array or, alternately, within the active subset of the bonus array, all value-bearing symbols **V** in the bonus array, whether within the active subset or not, may be collectable on that spin. The bonus spin counter **232** was decremented (step **122**) from 3 (as in FIG. **6**) to 2.

(46) Referring to FIG. **8** which further illustrates changes to the display resulting from the first bonus spin shown in FIG. **7**: Upon detection by the game logic circuitry (step **124**), the two value-bearing symbols **V** that appeared in the current active subset of the bonus array in FIG. **7** have been moved to the collection area **234**, increasing the number of value-bearing symbols **V** in the collection area **234** from 4 (FIG. **7**) to 6. The bonus spin counter **232** has been reset to 3 (step **126**) from 2 (FIG. **7**).

(47) Referring to FIG. **9**, which illustrates an example of the display at the conclusion of a representative second bonus spin (steps **114-126**), initiated because the bonus spin counter was non-zero at the conclusion of the first bonus spin (step **128**) illustrated by FIGS. **7-8**: The active subset of the array is limited to column **216** (step **118**). As no value-bearing symbols **V** appeared in the current active subset of the bonus array, the value-bearing symbols **V** in columns **210**, **212** and **214** were ignored and not collected. But, as described elsewhere, alternate embodiments may also collect value-bearing symbols **V** outside of the active subset of the array provided certain conditions are met. The bonus spin counter **232** was decremented (step **122**) from 3 (as in FIG. **8**) to 2.

(48) Referring to FIG. **10**, which illustrates an example of the display at the conclusion of a representative third bonus spin (steps **114-126**), initiated because the bonus spin counter was non-zero at the conclusion of the second bonus spin (step **128**) illustrated by FIG. **9**: The active subset of the array is columns **212-216** (step **118**). As no value-bearing symbols **V** appeared in the current active subset of the bonus array, the value-bearing symbols **V** in columns **210**, **216** and **218** were

ignored and not collected. The bonus spin counter 232 was decremented (step 122) from 2 (as in FIG. 9) to 1.

(49) Referring to FIG. 11, which illustrates an example of the display at the conclusion of a representative fourth bonus spin (steps 114-126), initiated because the bonus spin counter was non-zero at the conclusion of the third bonus spin (step 128) illustrated by FIG. 10: The active subset of the array is columns 214-216 (step 118). As no value-bearing symbols V appeared in the current active subset of the bonus array, the value-bearing symbols V in columns 212 and 218 were ignored and not collected. The bonus spin counter 232 was decremented (step 122) from 1 (as in FIG. 9) to 0. Because the bonus spin counter has been decremented to 0 (step 128), another bonus spin (steps 118-126) will not be initiated. The bonus game is terminated and normal game play (FIG. 4; step 106) resumes provided a cash out input is not received (step 130).

(50) Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims. Moreover, the present concepts expressly include any and all combinations and subcombinations of the preceding elements and aspects.

Claims

1. A method of operating a gaming machine, the method comprising the operations of: presenting, by a presentation assembly, a plurality of reels, an array and a collection area, the plurality of reels bearing a plurality of symbols, the plurality of symbols including value-bearing symbols; and conducting, by game-logic circuitry, a series of spins of the plurality of reels, each spin including: randomly selecting an active subset of the array; spinning and stopping the plurality of reels to land symbols from the plurality of symbols in the array; with respect to any value-bearing symbols among the landed symbols, collecting any value-bearing symbols that landed in the active subset of the array in the collection area, but not collecting any value-bearing symbols that landed outside of the active subset of the array; evaluating whether special conditions have been met; and if the special conditions have been met, collecting any value-bearing symbols that landed outside of the active subset of the array in the collection area; and at a conclusion of the series of spins, awarding a payout based on the values of the value-bearing symbols in the collection area.
2. The method of claim 1, wherein each value-bearing symbol is associated with a credit or currency value indicated on the symbol itself.
3. The method of claim 1, wherein each a value-bearing symbol may be associated with a value determined separately from an indication on the value-bearing symbol itself.
4. The method of claim 3, wherein the separately determined value is a progressive award.
5. The method of claim 1, further comprising: detecting, via a value input device, a physical item associated with a monetary value that establishes a credit balance; and receiving, via at least one of one or more electronic input devices, a cashout input that initiates a payout from the credit balance.
6. The method of claim 1, further comprising: receiving, via at least one of one or more electronic input devices, a wager input that initiates the series of spins.
7. The method of claim 1, wherein the special conditions comprise the appearance of a special symbol in the array.
8. The method of claim 7, wherein the special symbol is a collect all symbol.
9. The method of claim 1, wherein the special conditions comprise the collection of a predetermined number of value-bearing symbols.
10. The method of claim 1, wherein the special conditions comprise the occurrence of a randomly triggered event.
11. A gaming system comprising: a gaming machine including a presentation assembly configured to present a plurality of reels, an array and a collection area, the plurality of reels bearing a plurality of symbols, the plurality of symbols including value-bearing symbols; and game-logic circuitry

configured to perform the operations of: presenting a series of spins of the plurality of reels, each spin including: randomly selecting an active subset of the array; spinning and stopping the plurality of reels to land symbols from the plurality of symbols in the array; with respect to any value-bearing symbols among the landed symbols, collecting any value-bearing symbols that landed in the active subset of the array in a collection area, but not collecting any value-bearing symbols that landed outside of the active subset of the array unless special conditions have been met; and at a conclusion of the series of spins, awarding a payout based on the values of the collected value-bearing symbols.

12. The gaming system of claim 11, wherein each value-bearing symbol is associated with a credit or currency value indicated on the symbol itself.

13. The gaming system of claim 11, wherein each a value-bearing symbol may be associated with a value determined separately from an indication on the value-bearing symbol itself.

14. The gaming system of claim 13, wherein the separately determined value is a progressive award.

15. The gaming system of claim 11, further comprising: detecting, via a value input device, a physical item associated with a monetary value that establishes a credit balance; and receiving, via at least one of one or more electronic input devices, a cashout input that initiates a payout from the credit balance.

16. The gaming system of claim 11, further comprising receiving, via at least one of one or more electronic input devices, a wager input that initiates the series of spins.

17. The gaming system of claim 11, wherein the special conditions comprise the appearance of a special symbol in the array.

18. The gaming system of claim 17, wherein the special symbol is a collect all symbol.

19. The gaming system of claim 11, wherein the special conditions comprise the collection of a predetermined number of value-bearing symbols.

20. The gaming system of claim 11, wherein the special conditions comprise the occurrence of a randomly triggered event.
