

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CLOVER NETWORK, LLC

Petitioner,

v.

CLOUDOFCHANGE, LLC

Patent Owner.

Case IPR2023-00288

U.S. Patent No. 10,083,012

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,083,012**

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Petitioner Clover Network, LLC (“Clover”) respectfully requests *inter partes* review of claims 1-20 (the “challenged claims”) of U.S. Patent No. 10,083,012 (“’012 patent”) (EX1001).

I. MANDATORY NOTICES

A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))

Under 37 C.F.R. § 42.8(b)(1), Petitioner certifies that Clover Network, LLC is a real party-in-interest.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

CloudofChange, LLC (“Patent Owner” or “PO” or “CloudofChange”) sued Clover for patent infringement of the ’012 patent. *CloudofChange, LLC v. Clover Network, Inc.*, 6:22-cv-00634 (W.D. Tex. June 17, 2022) (“the Clover Litigation”). The Clover Litigation is pending.

CloudofChange sued Lightspeed POS Inc. (“Lightspeed”) for patent infringement of the ’012 patent. *CloudofChange, LLC v. Lightspeed POS Inc.*, 6:21-cv-01102 (W.D. Tex. Oct. 22, 2021) (“the Lightspeed Litigation”). The Lightspeed Litigation is pending.

Lightspeed filed a petition for *inter partes* review of the ’012 patent on May 5, 2022. *Lightspeed Commerce Inc. v. CloudofChange, LLC*, IPR 2022-00997, Paper No. 1 (PTAB May 5, 2022). The PTAB instituted *inter partes* review on November 7, 2022. *Id.*, Paper No. 9 (PTAB Nov. 7, 2022).

CloudfChange sued NCR Corporation for patent infringement of the '012 patent. *CloudfChange, LLC v. NCR Corporation*, 6:19-cv-00513 (W.D. Tex. Aug. 30, 2019) (“the NCR Litigation”). The NCR Litigation resulted in a jury verdict for Patent Owner, but it is still pending final judgment. *CloudfChange, LLC v. NCR Corporation*, 2021 WL 2964323 (W.D. Tex. May 20, 2021).

C. Counsel (37 C.F.R. § 42.8(b)(3))

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II. STANDING

Petitioner certifies under 37 C.F.R. § 42.104(a) that the '012 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR.

III. SUMMARY OF GROUNDS

Under 37 C.F.R. §§ 42.22(a)(1) and 42.104(b)(1)-(2), Petitioner requests cancellation of all claims of the '012 patent on the following grounds.¹

Ground	Basis	References	Claims
I	§ 103	U.S. Publication No. 2007/0265935 (“Woycik”) (EX1004)	1-20
II	§ 103	U.S. Publication No. 2008/0208696 (“Olson”) (EX1006) and Woycik	1-20
III	§ 103	U.S. Publication No. 2005/0049921 (“Tengler”) (EX1005)	1-20

IV. '012 PATENT SUMMARY

A. OVERVIEW

The '012 patent describes a method for building a point of sale (POS) system to manage business operations. EX1001, 1:20-27.

The '012 patent background describes the “[c]urrent practice in the field of assembling point of sale [POS] systems includes manually coding front-of-screen information,” e.g., with programmer help. *Id.*, 1:31-37. Manually “building and editing” POS-terminal user interfaces with “a complex interface to a front-of-screen programming language” requires “specially trained people,” “is prone to mistakes and is time-consuming.” *Id.*, 1:37-46.

¹ References to 35 U.S.C. §§ 102 and 103 are to the pre-AIA version.

The '012 patent purports to improve the process of building and editing POS terminals by using a POS-builder interface to access POS-builder software installed on a web server. *Id.*, Claim 1.

B. Prosecution History

The '012 patent application was filed June 17, 2017, and claims priority to U.S. Patent No. 9,400,640, filed February 5, 2008. EX1001, (22), (63). PO filed a terminal disclaimer to overcome the single Office Action rejecting all claims for non-statutory double patenting. EX1003, 37. The '012 patent issued September 25, 2018. EX1001, (45).

V. STATE OF THE ART

“Web-based POS systems were known in the art.” EX1002, ¶18 (citing Manno (EX1007), Woycik (EX1004), Olson (EX1006), Cusack (EX1009), Tomlinson (EX1010), McNally (EX1021), Mueller (EX1008), and Tengler (EX1005)). “POS builder software was also known in the art.” *Id.*, ¶19 (citing Manno, Woycik, Cohen (EX1020), McNally, Wagner (EX1022), Tengler, and Mueller). PO “does not dispute that the prior art discloses POS builder software.” EX1012, 7 n.3.

“Web-based access to POS builder systems was also known in the art.” EX1002, ¶21 (citing Manno, Woycik, Mueller, and Tengler). “POS builder interfaces allowing programmatic creation and editing of user interfaces, including

POS screens and web pages, were also known.” *Id.* (citing Woycik, Tengler, and Bernardo (EX1026)).

VI. PRIOR ART OVERVIEW

A. Woycik (EX1004)

Woycik was filed May 1, 2007 and published November 15, 2007, both before the '012 patent's priority date of February 5, 2008. EX1004, (22), (43). Woycik is prior art under at least §§ 102(a) and (e).

Woycik discloses a web-based administrative tool for building and editing user interfaces of self-service POS kiosks. The administrative tool is installed on a central server and is accessible by “web access.” *Id.*, [0075]. The administrative tool and its user interfaces enables “the administrator to perform various administrative functions such as configuring kiosks [and] creating and editing menus and available food items.” *Id.*, [0073]; EX1002, ¶¶36-37.

B. Olson (EX1006)

Olson was filed February 26, 2007, before the '012 patent's priority date. EX1006, (22). Olson identifies one inventor, Quentin Olson. *Id.*, (76). The '012 patent includes two inventors, Mr. Olson and Wayne Baratta. EX1001, (72). Olson and Baratta together conceived of a POS builder, a limitation in all challenged claims. EX1013, 18:11-19:16, 85:4-12, 87:14-88:3, 123:14-124:15. Olson is prior

art under § 102(e) as a published application “by another” before the ’012 patent.² See *Duncan Parking Technologies, Inc. v. IPS Group Inc.*, IPR2016-00067, Paper No. 29, 6-16 (PTAB Mar. 27, 2017); *Maxlinear, Inc. v. Cresta Tech. Corp.*, IPR2015-00594, Paper No. 90, 12-24 (PTAB Aug. 15, 2016). Olson and Baratta assigned the ’012 patent to PO in 2017. EX1015, EX1016.

Olson discloses a web-based back-office system for managing POS terminals. EX1006, Abstract. The back-office (“BO”) software is implemented on web servers that communicate with POS-terminal devices using HTTP protocol. *Id.*, [0019]. “BO software and data can be viewed from any store employee at any PC who has Internet access 26 and a password.” *Id.*; EX1002, ¶¶40-41.

C. Tengler (EX1005)

Tengler published March 3, 2005, over one year before the ’012 patent’s priority date. EX1005, (43). Tengler is prior art under at least § 102(b).

Tengler discloses a merchant order processing system. EX1005, Abstract. Restaurant Management Software is installed on a web server, and POS-terminal devices run register and self-service applications. *Id.*, [0103]. Tengler’s system allows “a manager to access a management database of a quick-serve restaurant

² The ’012 patent incorporates Olson by reference (EX1001, 1:11-14) but does not claim priority to Olson.

location remotely through a web interface.” *Id.*, [0022]. The web interface provides “[a] user interface designer” for “management to edit the user interface of the register and self-service applications.” *Id.*, [0103]; EX1002, ¶¶38-39.

VII. LEVEL OF ORDINARY SKILL

A “person of ordinary skill in the art” (POSITA) on the effective filing date of the ’012 patent would have had a working knowledge of designing and developing web-based software and systems. A POSITA would have had a Bachelor of Science in computer science or a related field, and approximately two years of professional experience or equivalent study in the design and development of web-based software and systems, including web-based POS systems. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education. EX1002, ¶17.

VIII. CLAIM CONSTRUCTION³

Unless otherwise noted, terms are given “ordinary and customary meaning” to those “of ordinary skill in the art.” 37 C.F.R. § 42.100(b).⁴ Petitioner reserves the opportunity to respond to constructions offered by PO or adopted by the Board.⁵

A. “communications network” (claims 1, 14)

This term is not in the specification and was introduced in a preliminary claim amendment during prosecution. EX1003, 134. “The term should be given its ordinary meaning—i.e., a group of devices interconnected by communication

³ Prior *Markman* orders do not impact the Petition’s grounds. EX1024, EX1025, EX1034. EX1002, ¶29.

⁴ In the ’012 claims, “POS terminal” is “generated by [] POS builder software” and “accessible at one or more terminal devices” (e.g., the terminal device’s POS software and related interface-configuration data), not the terminal device.

EX1001, Claims 1, 14. In contrast, in the parent ’640 claims, “POS terminal” refers to a terminal *device* “that displays POS screens.” EX1027, Claims 1, 14. No construction is needed, but this context may aid the Board. EX1002, ¶¶30-31.

⁵ Petitioner does not concede that the challenged claims satisfy requirements for patentability unavailable in IPR and reserves all rights to challenge all claims on such grounds in district court or otherwise.

channels.” EX1002, ¶32. The term should not be limited to a particular protocol, medium of connection, or combination thereof. The parent ’640 patent claims require “an internet connection” and a “network compris[ing] the Internet” (EX1027, Claim 1), whereas the ’012 claims more broadly recite “network communication[s]” via a “communications network” (EX1001, Claim 1); EX1002, ¶34.

IX. DISCRETIONARY DENIAL IS UNWARRANTED⁶

The Office considered the art and arguments herein in IPR 2022-00997 and granted institution on November 7, 2022. This is Petitioner’s first petition for IPR

⁶ The NCR jury addressed the ’012 patent’s invalidity, but only considered one reference (Woycik) relied upon herein and did not consider the Petition’s Woycik-based grounds or arguments. Discretionary denial based on the NCR Litigation is unwarranted because Petitioner was not a party in that litigation and has not delayed seeking IPR. *See Expedia, Inc. v. IBM Corp.*, IPR2018-01354, Paper No. 8, 33-37 (PTAB Mar. 27, 2017). This Petition includes claims, art, grounds, and arguments not considered by the NCR jury. *See Apple Inc. v. Optis Cellular Tech., LLC*, No. IPR2020-00465, Paper No. 13, 18-21 (PTAB Sept. 17, 2020); *Wells Fargo v. United Servs. Auto. Assn.*, IPR2019-01082, Paper No. 9, 12-14 (PTAB Dec. 13, 2019).

against the '012 patent, so discretionary denial is unwarranted. *Cf. Apple Inc. v. Uniloc 2017 LLC*, IPR2020-00854, Paper No. 9 (PTAB Oct. 28, 2020) (precedential) (discretionarily denying copycat petition under *General Plastic* factors where copied Petition is Petitioner's second challenge to the patent); *see also General Plastic Industrial Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper No. 19 (PTAB Sept. 6, 2017) (precedential).

A. Institution is Proper Under § 314(a)

The *Fintiv* factors weigh against discretionary denial. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper No. 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"). Petitioner respectfully requests the Board not exercise its discretion to deny institution under *Fintiv*. *See also Memorandum re Interim Procedure for Discretionary Denials* (June 21, 2022), https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf ("*Memorandum*"). The *Fintiv* factors are addressed below.

Factor 1: Neutral. Petitioner intends to seek a stay of the Clover Litigation if this IPR is instituted.

Factor 2: Favors institution. As of filing, the Clover Litigation is in its infancy—discovery has not commenced, a *Markman* hearing is scheduled for April 10, 2023, and jury selection/trial is tentatively scheduled for April 22,

2024. EX1036. The most recent statistic on median time-to-trial for civil actions in the Western District of Texas is 28.3 months (here, October 26, 2024 is over 28 months after June 17, 2022, the Clover Litigation filing date). <https://www.uscourts.gov/statistics/table/na/federal-court-management-statistics/2022/06/30-2>; *see also* Memorandum at 8-9. If this IPR is instituted and joined to the already instituted IPR2022-00997 of the '012 patent, a FWD would be expected November 7, 2023.

Factor 3: Favors institution. As of filing, the court and parties have made minimal investment in the Clover Litigation, and the district court has not issued substantive orders in the Clover Litigation. Petitioner filed this Petition expeditiously after receiving PO's preliminary infringement contentions served September 30, 2022, reviewing the 30 claims asserted from three patents, and analyzing prior art for invalidity contentions, which are not due to be served until December 16, 2022.

Factor 4: Strongly favors institution. Petitioner challenges more '012 patent claims than PO asserts in district court (20 claims v. 12 claims). Thus, "[i]nstituting trial here serves overall system efficiency and integrity goals ... by resolving materially different patentability issues." *Apple, Inc. v. SEVEN Networks, LLC*, IPR2020-00156, Paper No. 10, 19 (PTAB June 15, 2020) (this factor "strongly" favored institution).

Factor 5: Neutral.

Factor 6: Favors institution. The grounds presented herein are strong, as the Board has found. *See* IPR2022-00997, Paper No. 9 (PTAB Nov. 7, 2022) (instituting IPR of '012 patent on the same art and arguments as herein); *see also* Memorandum at 3-5. This IPR will resolve issues beyond those in the Clover Litigation and may prevent future litigation as PO, a non-practicing entity, sent notice letters to at least 25 entities. EX1014, 6.

B. Institution is Proper Under § 325(d)

Although Olson is listed on the face of the '012 patent, institution is proper. Discretionary denial is unwarranted where a petitioner relies upon art cited on the face of the challenged patent but “not applied by the examiner ... in any rejection of claims.” *Comcast Cable Commc'ns, LLC v. Promptu Sys. Corp.*, IPR2018-00342, Paper No. 8, 17 (PTAB Jan. 15, 2019). Olson was not used in a rejection or otherwise discussed during prosecution. The Olson-based ground herein was not considered by the examiner, and the Office has never considered Woycik or Tengler relative to the '012 patent. EX1002, ¶42.

All grounds rely on noncumulative prior art and arguments not considered by the Office during prosecution, which favors institution regardless of purported overlapping references. *Oticon Medical AB et al. v. Cochlear Ltd.*, IPR2019-00975, Paper No. 15, 18-20 (PTAB Oct. 16, 2019).

The Office considered Woycik and Olson and arguments similar to those herein in IPR2022-00997, instituted on November 7, 2022.

X. CLAIM LISTING

The challenged claims are listed in Appendix A.

XI. GROUND 1: WOYCIK IN VIEW OF THE KNOWLEDGE OF A POSITA RENDERS OBVIOUS CLAIMS 1-20

A. Claim 1

1. 1[pre]⁷

Woycik discloses “[a] computer-based ordering system for ordering goods and services includes a plurality of self-service client terminals and a server.” EX1004, Abstract. An “administrative tool” available via “web access” provides “a menu editor that enables the administrator to create and edit the interactive menu screens.” *Id.*; *see also id.*, [0041], [0050]-[0051], [0075], [0079], [0081], [0097]-[0099]; EX1002, ¶¶43-44.

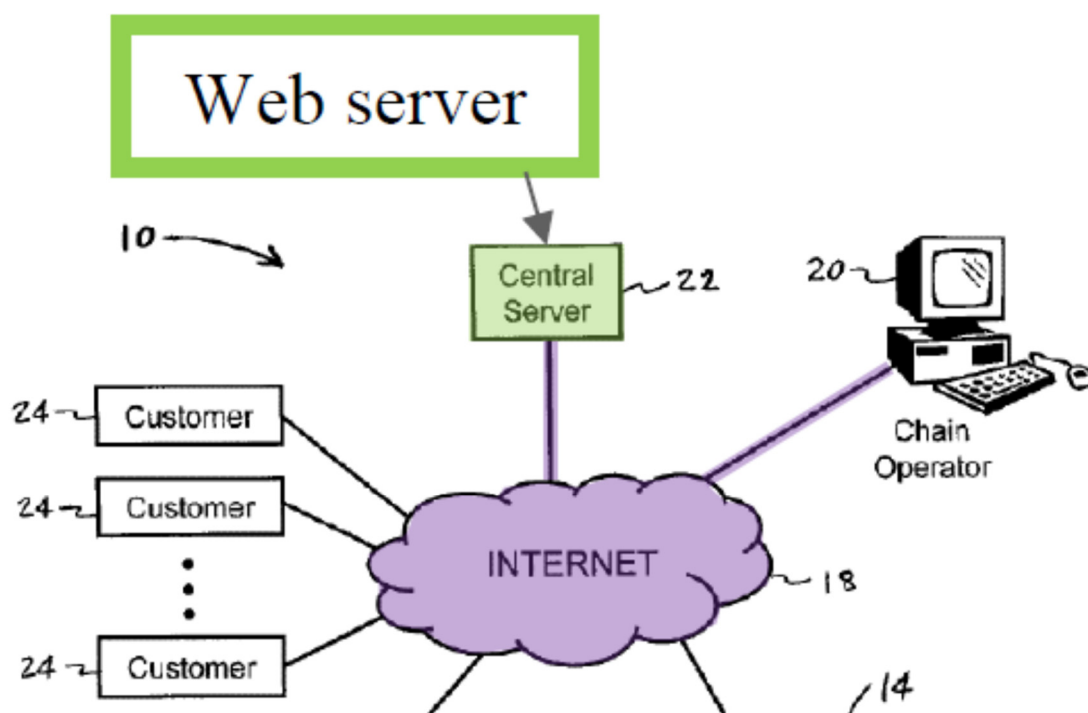
2. 1[a]

Woycik discloses “chain operator 20 [has] web access to the central server 22” via Internet 18. EX1004, [0075]. The central server “coordinate[s] multiple store locations.” *Id.*, [0030]. “[U]sing a standard web browser” and Internet 18, chain

⁷ PO contends “the preamble is not limiting.” EX1017, 4. To the extent any preambles are limiting, they are disclosed in each ground. EX1002, ¶43 n.1.

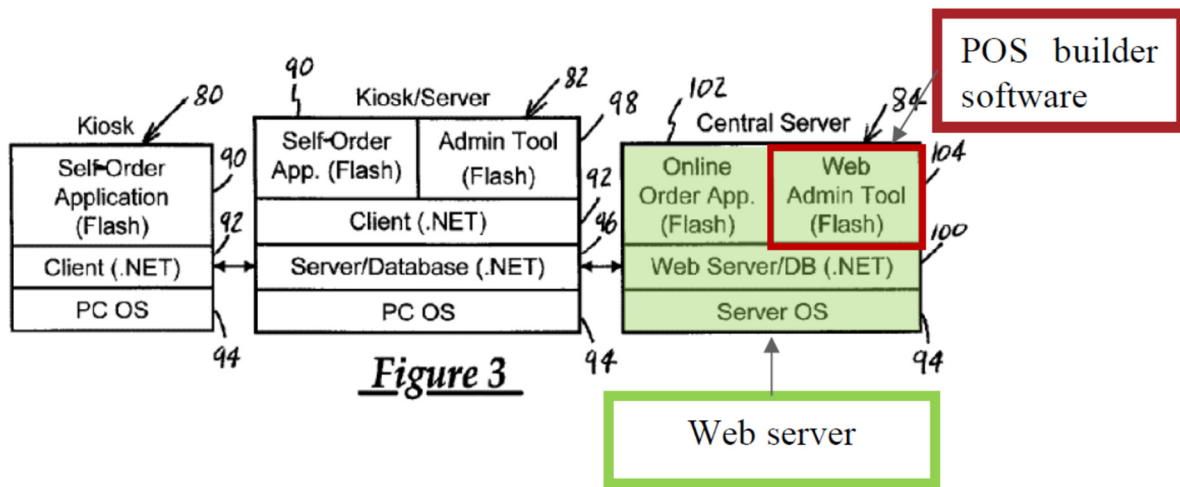
operator 20 has web access to “administrative tool loaded on the central server 22.”

Id., [0075], [0121], [0017]; EX1002, ¶45.



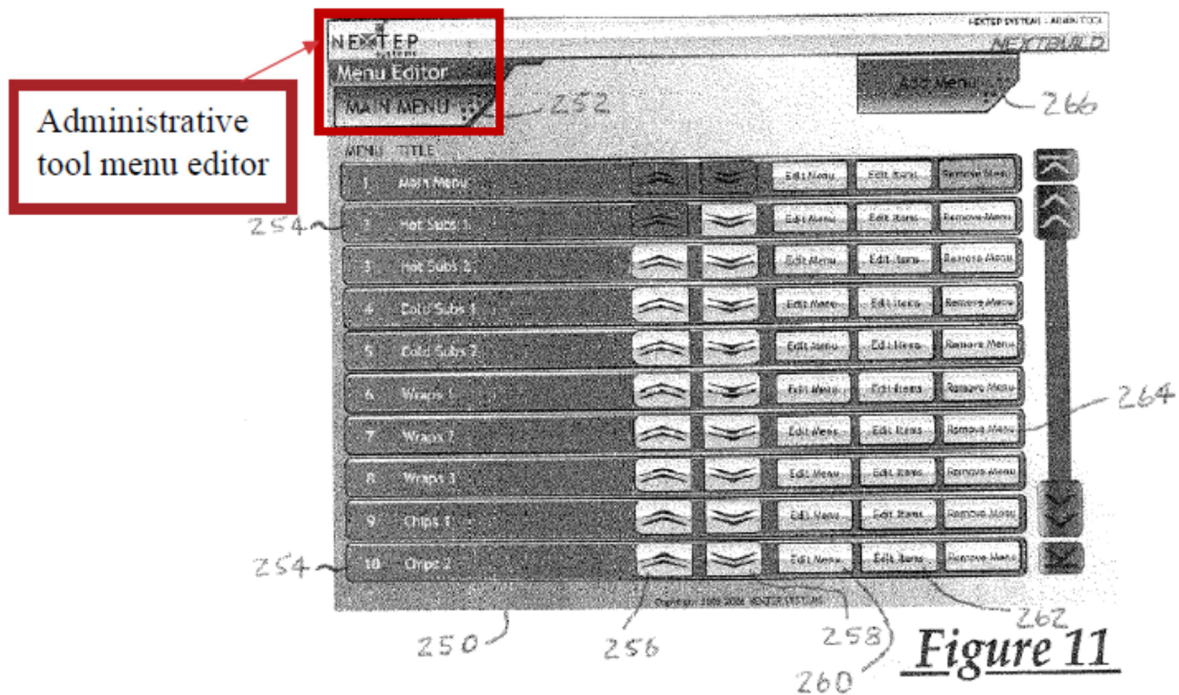
Id., Fig. 1 (excerpted).

Figure 3 illustrates software layers running on the central server, including a “web based administrative tool” and “web server program 100”:



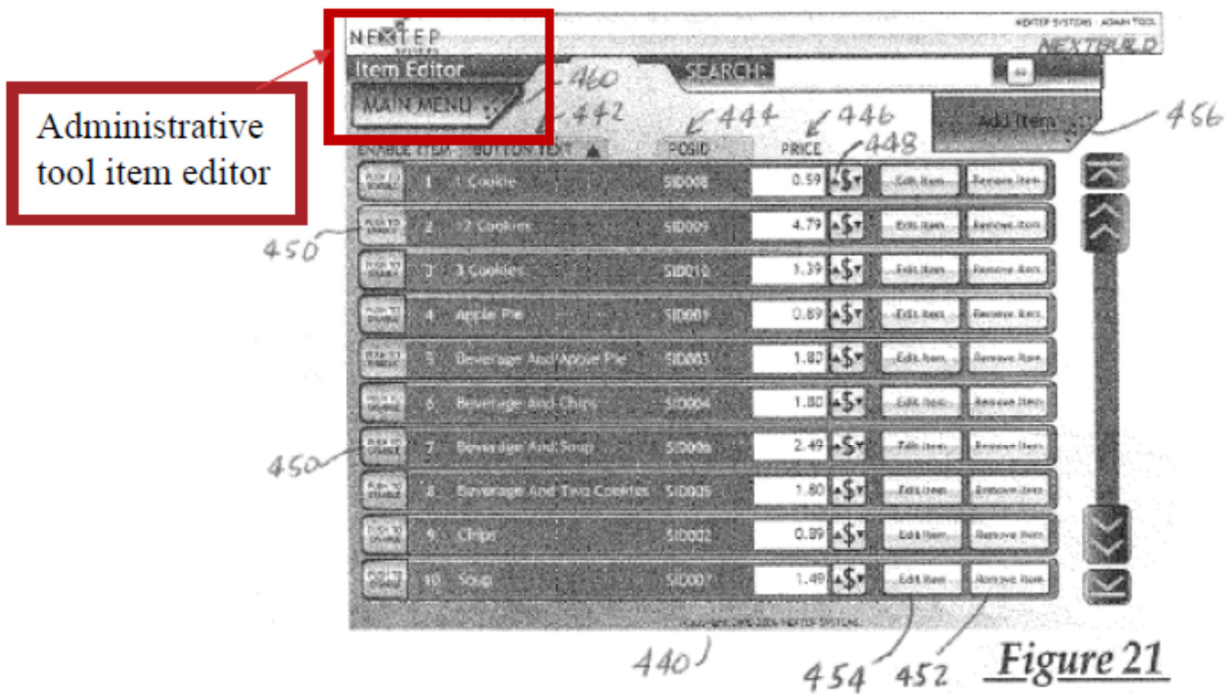
Id., Fig. 3; *see also id.*, [0078]-[0081], [0095]-[0103], [0108]-[0115], [0120]-[0124]; EX1002, ¶46.

The “administrative tool” provides “a menu editor” that “enables the administrator to create and edit the interactive menu screens provided by the self-order application” “at the self-service client terminals.” *Id.*, [0013], [0016]; *see also id.*, [0041], [0050]-[0051]. “FIG. 11 depicts a menu editor screen of the administrative tool.” *Id.*, [0041]; EX1002, ¶47.



Id., Fig. 11; *see also id.*, [0098], [0108], Figs. 12-13, 20.

The “administrative tool” provides “an item/product editor screen ... which enables the editing [and adding] of the individual items/products for sale.” *Id.*, [0051]; EX1002, ¶48.



Id., Fig. 21; *see also id.*, [0112], Fig. 22.

Configuration changes (e.g., menu/item edits and additions) made with the administrative tool on central server 22/84 can be “automatically” transmitted to local server kiosk 16/82. *Id.*, [0122]; *see also id.*, [0115], [0076]; EX1002, ¶49.

Thus, Woycik discloses a web server (e.g., central server 22/84) with POS-builder software (e.g., administrative tool) installed thereon. EX1002, ¶¶45-50.

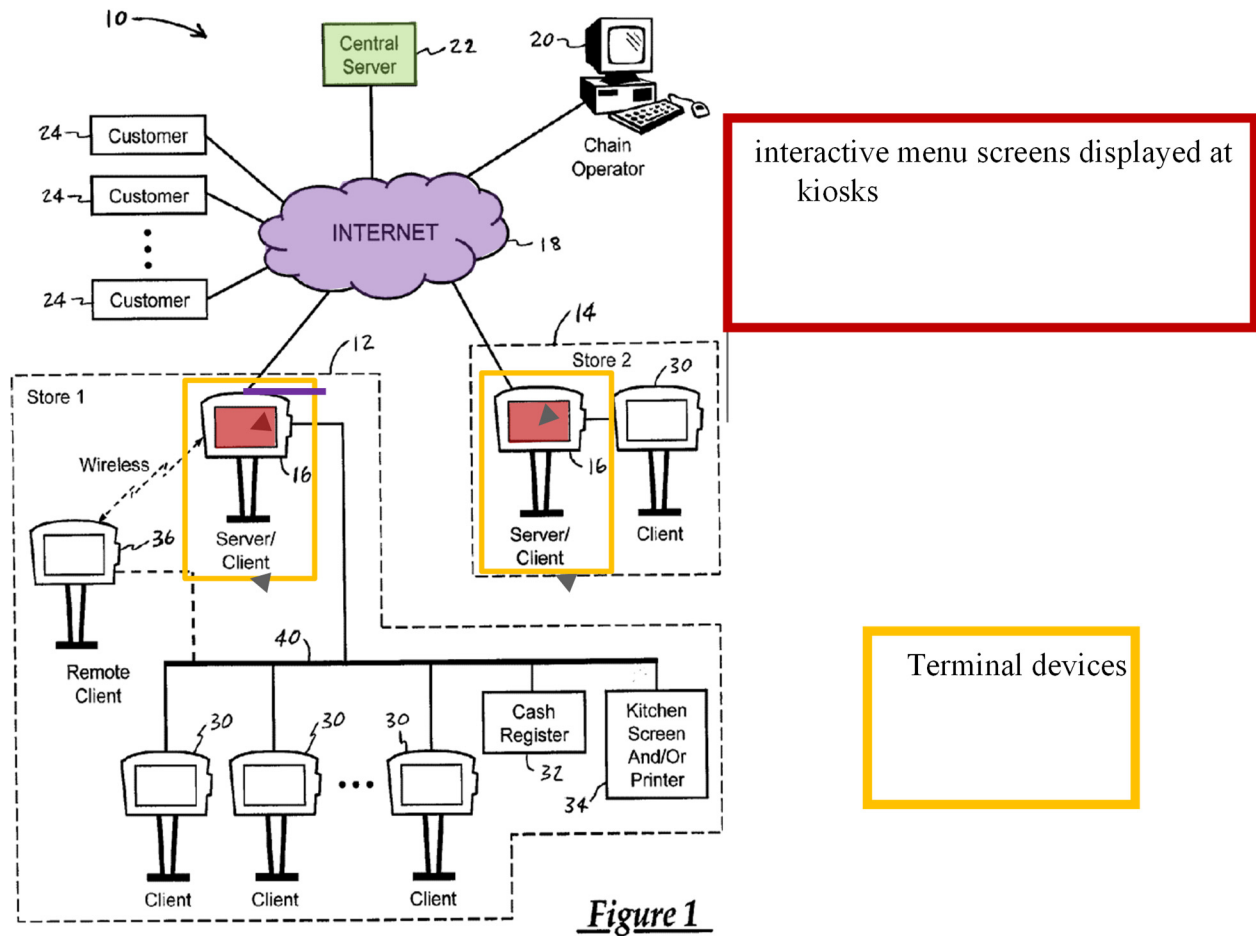
3. 1[b]

As discussed in 1[a], Woycik discloses builder software (e.g., administrative tool) installed on central server 22/84 that enables administrators to create/edit menus and add/edit items of the self-order application and save such changes to the

central server. Configuration information from the administrative tool saved at the central server includes “menu screens, items, and other settings” for the self-order application. EX1004, [0075]. The central server can “automatically” transmit changes (e.g., “changes to the configuration of the self-order application”) to local server kiosk 16/82. *Id.*, [0122]; *see also id.*, [0112], [0115], [0073]. The central server can also install a new kiosk or restore an existing kiosk by “load[ing] all necessary files onto the kiosk, including any software, database, menu, configuration files and media necessary for use.” *Id.*, [0124], Fig. 27; EX1002, ¶51.

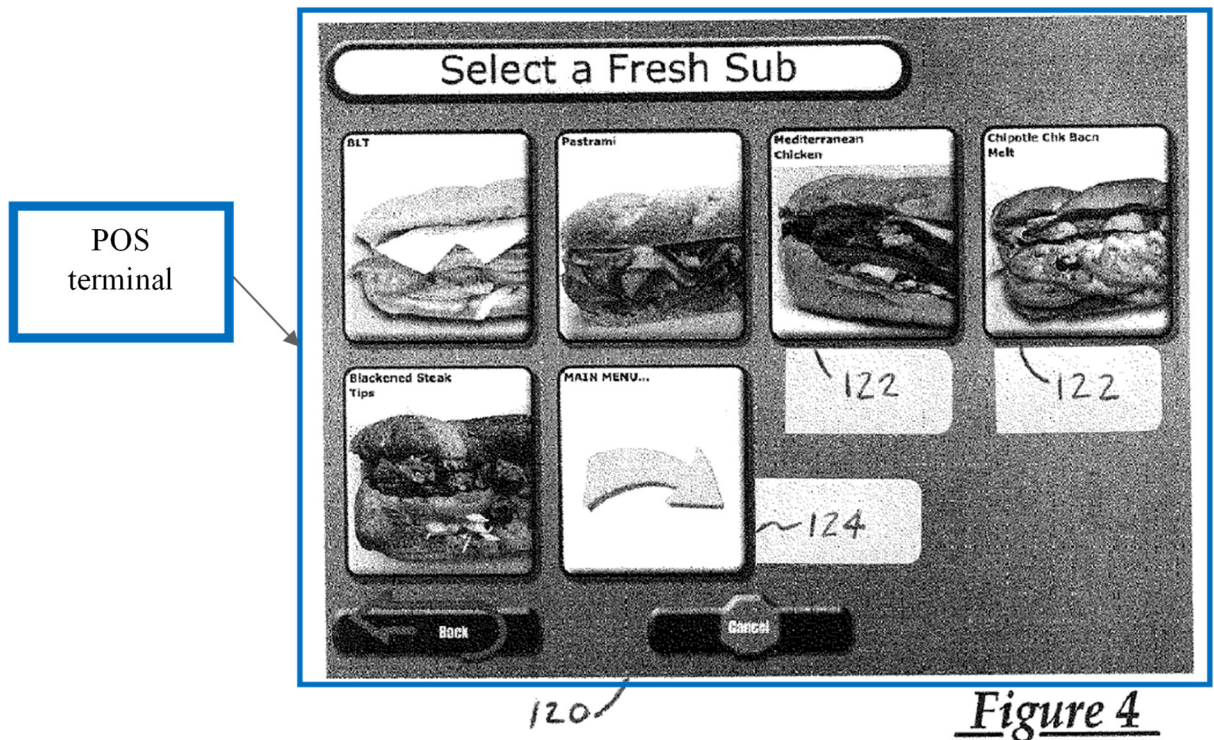
Terminal device 16/82 (called “kiosk 16,” “local kiosk 16,” “server kiosk 16,” “server kiosk 82,” “client/server kiosk 82”) serves two roles: server and kiosk. *Id.*, [0072], [0078], Figs. 1, 3. First, in its role as server, it receives and stores “new configuration information” for the self-order application (including “menu screens, items, and other settings”) from central server 22 over Internet 18. *Id.*, [0075]; *see also id.*, [0073], [0083], [0122]; EX1002, ¶52.

Second, it serves as a kiosk to permit customer order entry. *Id.*, [0072]. Kiosks are a form of self-service client terminals, e.g., “mounted to a floor ... or located on a counter or other raised surface.” *Id.*, [0007], *see also id.*, [0032], Fig. 2. Self-service client terminals (e.g., kiosk 16/82) are terminal devices that display POS terminals generated by the administrative tool (POS-builder software). EX1002, ¶¶53-54.



Id., Fig. 1; *see also id.*, [0012], [0073].

“FIG. 4 depicts a sandwich selection screen provided by the self-order application running on a kiosk.” *Id.*, [0034]. EX1002, ¶55.



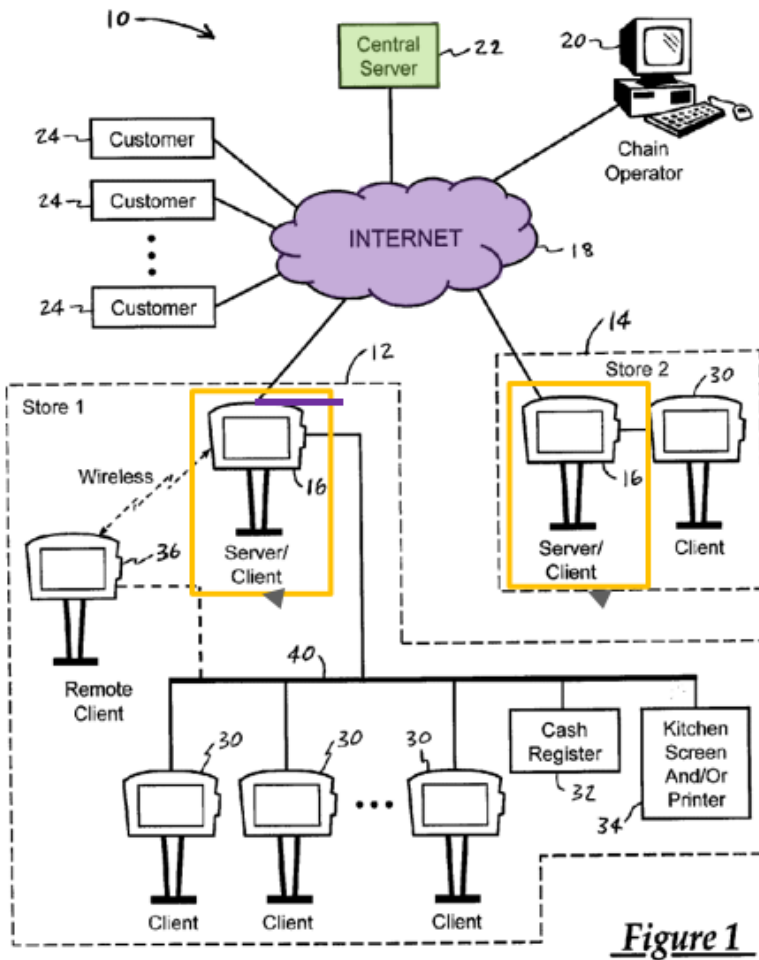
Id., Fig. 4; *see also id.*, [0129], Figs. 5-9 (additional POS terminals), 29-30 (template and display for ordering at a sports-entertainment venue).

Accordingly, Woycik discloses POS terminals (e.g., self-order application and/or its interactive-menu screens) generated by POS-builder software (e.g., administrative tool) and configured to be accessible at one or more terminal devices (e.g., kiosk 16/82). EX1002, ¶¶51-57.

4. 1[c]

As discussed in 1[b], Woycik discloses kiosk 16/82 “runs a self-order application” that “provides a first user interface including a set of interactive menu screens having buttons that allow the customer to select and customize products for

the order.” EX1004, [0016], [0012]. “The self-order application can also accept payment at the kiosk.” *Id.*, [0092]; EX1002, ¶58.



Kiosks 16

Id., Fig. 1. Customers can review and edit the order using the interactive-menu screens before checkout:

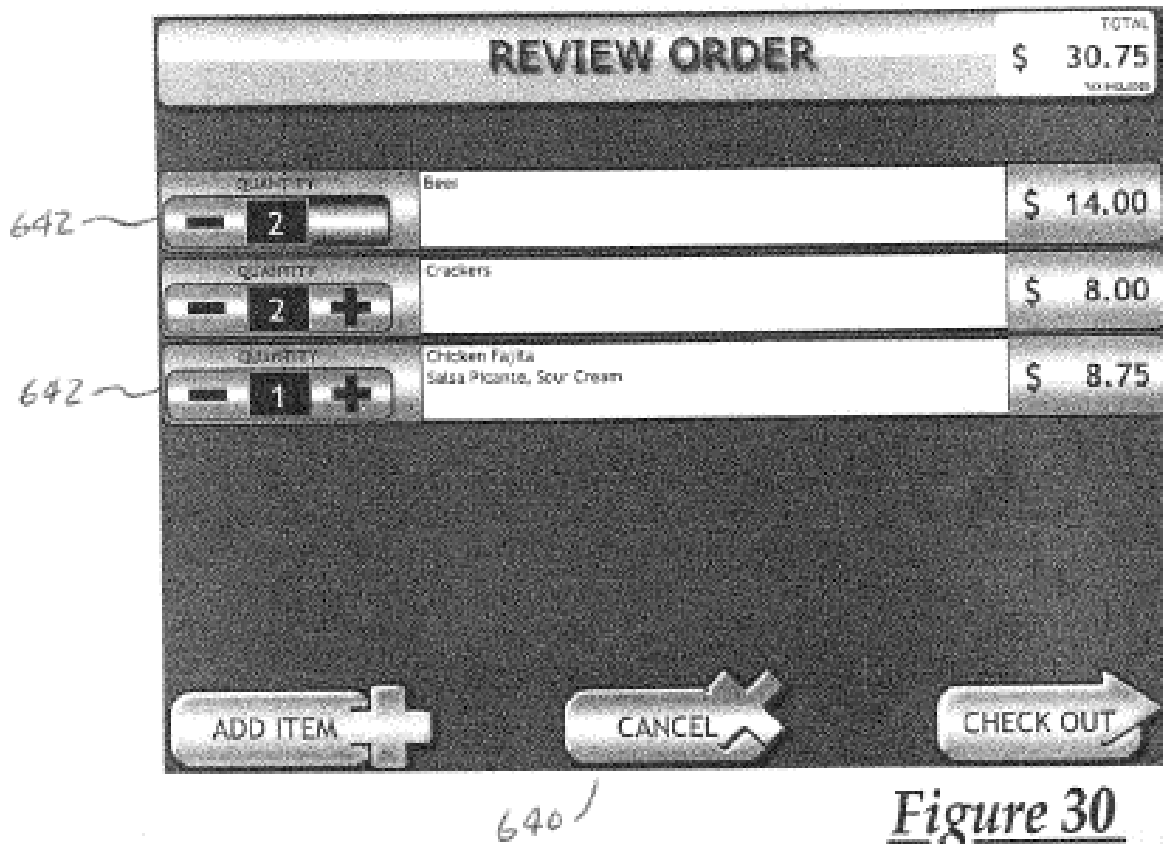


Figure 30

Id., Fig. 30; *see also id.*, [0129]; EX1002, ¶58.

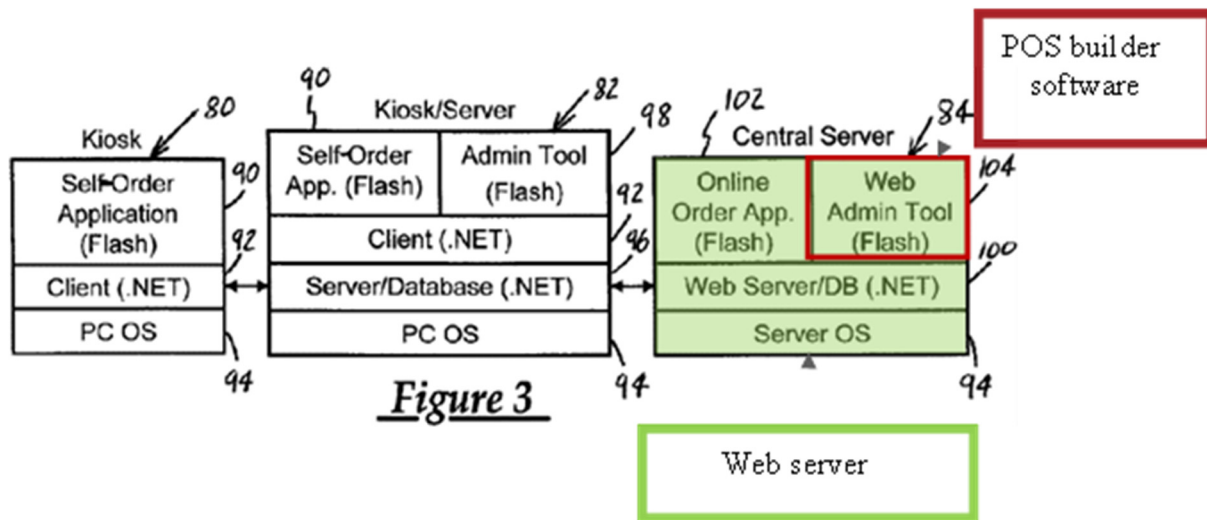
The self-order application on kiosk 16/82 collects corresponding transaction data to transmit to the central server. Specifically, “customer data and/or order data is stored on the local server when a customer places an order through a client or remote client,” and “[t]he local server connects to the remote server periodically and stores the customer and order data in the centralized data repository.” *Id.*, [0128]; *see also id.*, [0058], [0076], [0141], Claims 38-39, Fig. 28; EX1002, ¶59.

Accordingly, Woycik discloses POS terminals (e.g., self-order application and/or its interactive-menu screens) at kiosk 16/82 configured to accept POS

transactions and collect corresponding transaction data (e.g., customer and/or order data). EX1002, ¶¶58-60.

5. 1[d]

Woycik discloses “the administrative tool [is] loaded on the central server 22,” and chain operator 20 is provided “web access to the central server 22” via Internet 18. EX1004, [0075], Fig. 1, [0081]; EX1002, ¶61.



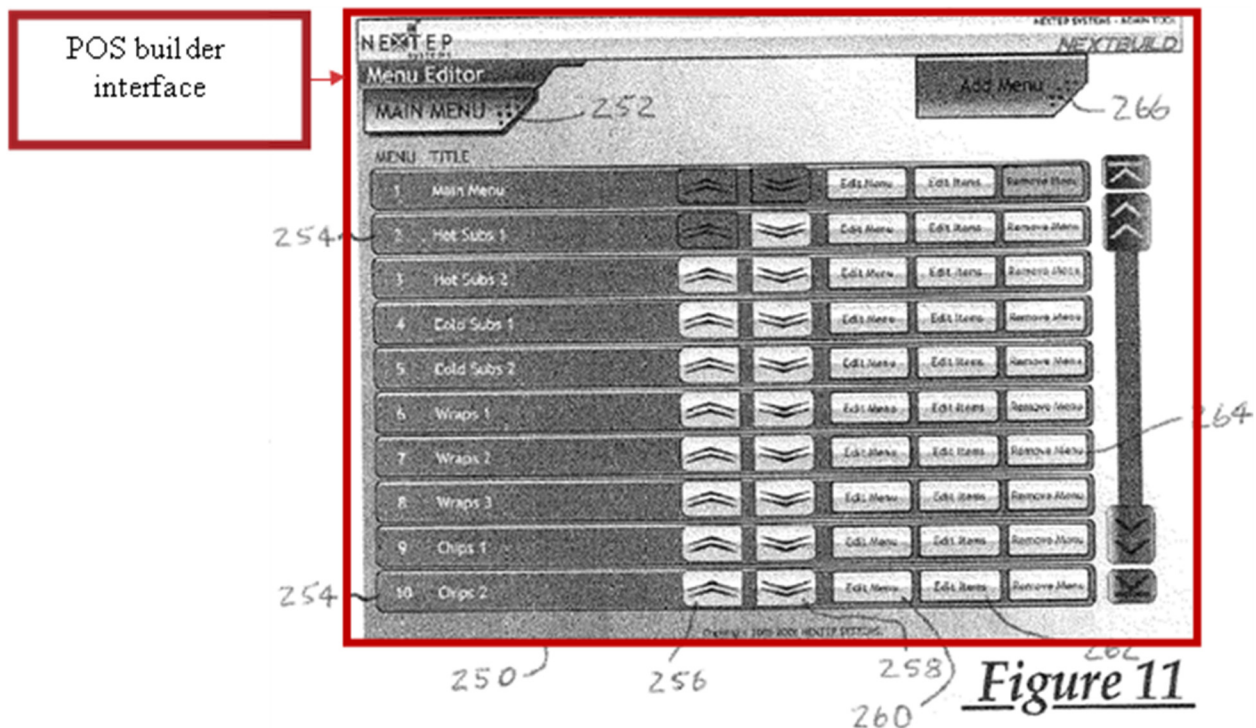
Id., Fig. 3.

As discussed in 1[a], Woycik discloses the “administrative tool” (i.e., POS-builder software) provides “a menu editor ... to create and edit the interactive menu screens” and an “item editor” to add and edit items on the menu screens. *Id.*, [0016], [0013], [0041], [0050], [0112]; EX1002, ¶62.

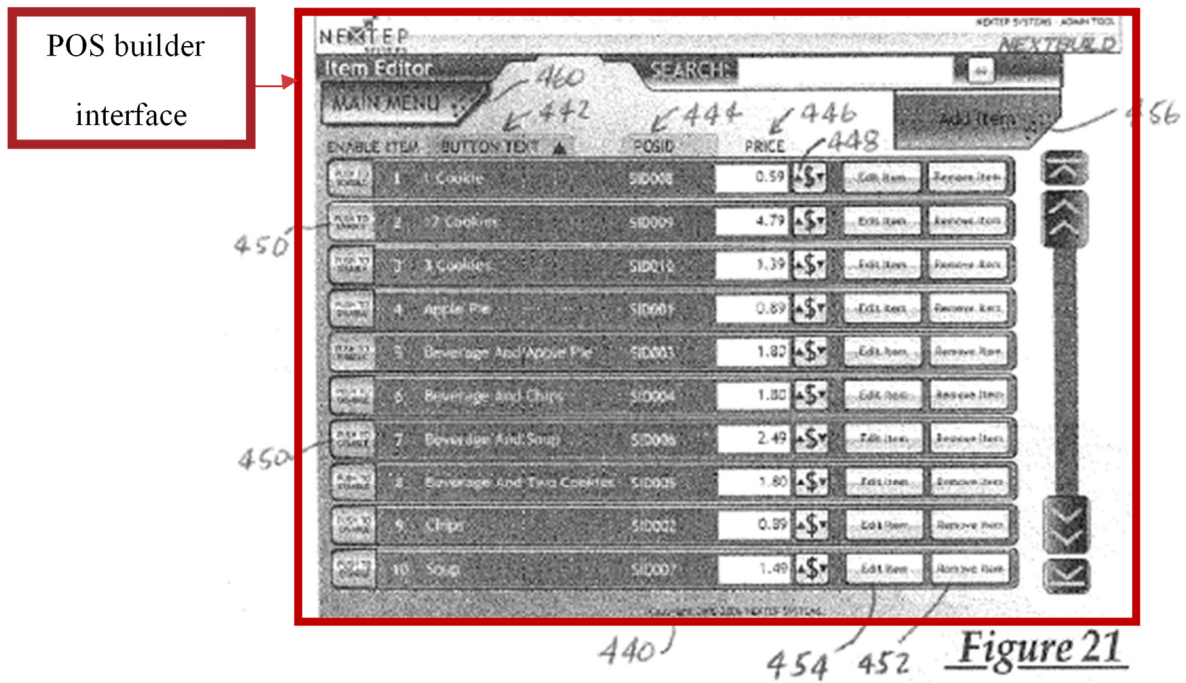
The administrative-tool user interfaces are accessible via Internet. *Id.*, [0080], [0095], [0098], [0100], Claim 4, Claim 6. Administrators use the Internet “to access

the administrative tools remotely using a standard web browser.” *Id.*, [0121]; EX1002, ¶63.

The administrative tool’s menu editor “allows an administrator to create and edit the screens or menus that customers see in the self-order application running on a kiosk.” *Id.*, [0041]; EX1002, ¶64.



Id., Fig. 11; *see also id.*, [0108], Figs. 12-13, 20. The “administrative tool” provides “an item/product editor screen ... which enables the editing of the individual items/products for sale.” *Id.*, [0051]; EX1002, ¶64.



Id., Fig. 21; *see also id.*, [0112], Fig. 22.

Thus, Woycik discloses a POS-builder interface (e.g., the administrative tool's user interface) configured to be accessible via network communication (e.g., web access over the Internet) with said web server (e.g., central server 22/84) over a communications network (e.g., the Internet). EX1002, ¶¶61-65.

6. 1[e]

As discussed in 1[a] and 1[d], Woycik discloses a POS-builder interface (e.g., the administrative tool's user interface) that enables administrators, via Internet communication with a web server, to create/edit menus and add/edit items of the interactive-menu screens of the self-order application. *See* EX1004, [0075]; EX1002, ¶66.

The administrative tool's user interface (i.e., the POS-builder interface) is provided by and used to access the administrative tool (i.e., POS-builder software) to perform administrative functions. *Id.*, [0095], [0098], Claims 4, 6. Menu and item changes are based on selections at the administrative-tool user interface such that "knowledge of the underlying code" is not required. *See id.*, [0095], [0080], [0100]. Configuration changes (e.g., menu/item changes) made over the Internet with the administrative tool at central server 22 are saved to the central server, then pushed to kiosks at local stores. *Id.*, [0115], [0076], [0122]. The central "server can automatically send the changes to the local server" via Internet 18. *Id.*; *see also id.*, [0071]-[0072], [0115]. Woycik thus discloses and suggests programmatically creating or modifying POS terminals in real time. EX1002, ¶68.

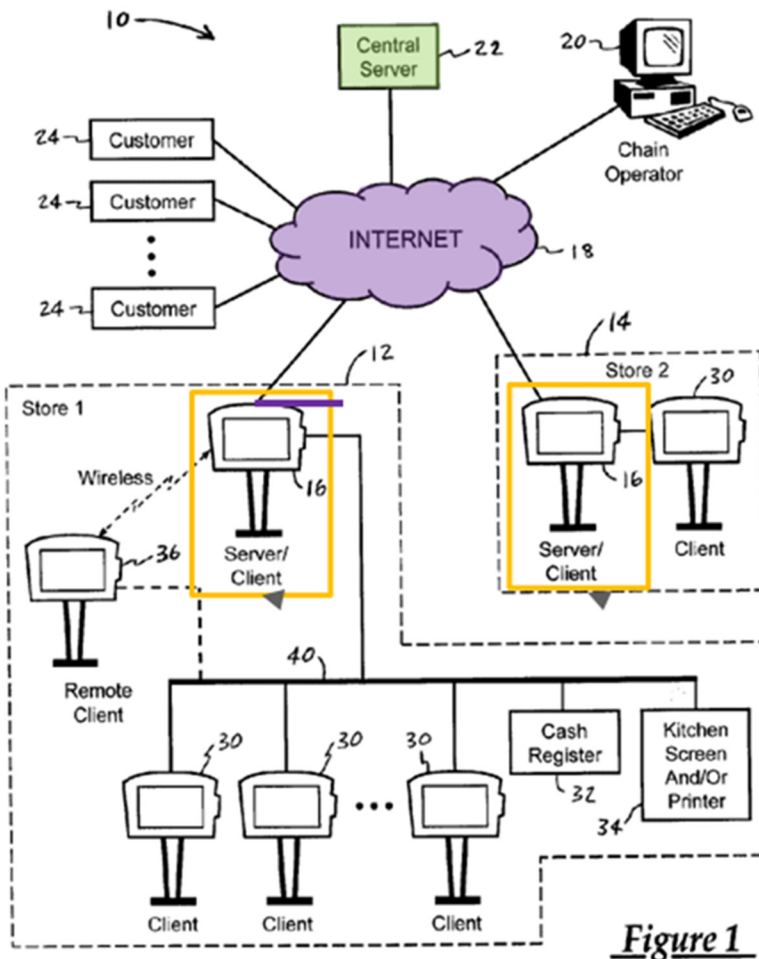
Accordingly, Woycik discloses and suggests a POS-builder interface (e.g., the administrative tool's user interface) configured to be utilized to access said POS-builder software (e.g., the administrative tool) for programmatically creating or modifying said one or more POS terminals (e.g., the self-order application and/or its interactive-menu screens) in real time over the communications network (e.g., Internet). EX1002, ¶¶66-69.

7. 1[f]

The web-based administrative tool installed on the central server provides updates via the Internet to the self-order application and its interactive-menu screens

on kiosk 16/82. EX1004, [0071], [0076]. The central (remote) server can install a new kiosk or restore an existing kiosk via a “web installation service ... that loads all necessary files onto the kiosk, including any software, database, menu, configuration files and media necessary for use.” *Id.*, [0124], Fig. 27; EX1002, ¶70.

Changes made using the administrative tool’s user interface (e.g., menu and item changes) are saved to the central server, then pushed to kiosks 16/82. *Id.*, [0115], [0076]. “[A] franchiser can create a new item or modify an existing item with all of its associated attributes and save it to the remote server.” *Id.*, [0122]. Central server 22 “can automatically send the changes to the local server,” such as server kiosk 16/82. *Id.*; *see also id.*, [0072], [0120]. Also, kiosk 16/82 may access a master order governor to determine whether to display its order screen. *Id.*, [0115], [0139]. As explained for 1[b], the central server communicates with kiosk 16/82 via Internet 18 to provide updates to the self-order application and its interactive-menu screens using instructions sent from the administrative tool’s user interface. EX1002, ¶71.



Kiosks 16

EX1004, Fig. 1.

Accordingly, Woycik discloses POS-builder software (e.g., the administrative tool) on central server 22/84 configured to interact with said POS terminals (e.g., the self-order application and/or its interactive-menu screens) over the communications network (e.g., Internet) for the POS-builder system to perform functions using instructions sent from the POS-builder interface (e.g., instructions for menu/item changes). EX1002, ¶¶70-72.

8. 1[g]

Woycik discloses that POS transactions and corresponding transaction data from the POS terminals (e.g., the self-order application and/or its interactive-menu screens) at terminal devices (e.g., kiosks 16/82) are transmitted to the central (web) server via the Internet. EX1002, ¶73.

The central server stores transaction data from the kiosks. For example, “[t]he local server connects to the remote server periodically and stores the customer and order data in the centralized data repository.” EX1004, [0128]; *see also id.*, [0089], [0097], [0076], Fig. 28, [0072], [0030]. Kiosk 16/82 and central server communicate via Internet 18. *Id.*, [0071], Fig. 1; EX1002, ¶¶73-75.

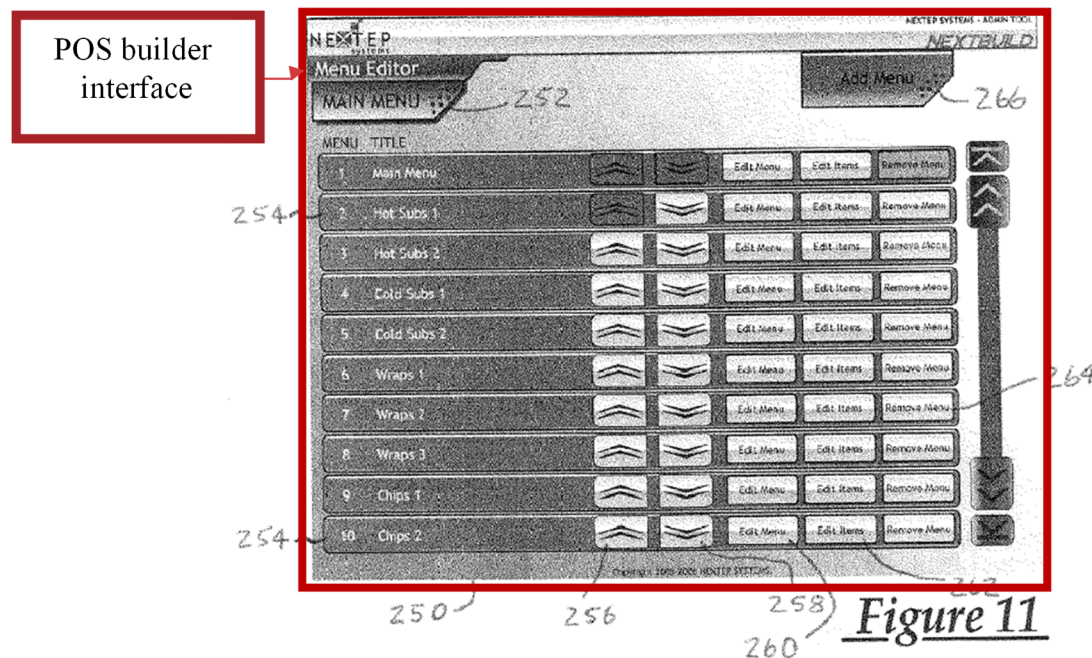
9. 1[h]

As explained in 1[g], Woycik discloses the centralized data repository at central server 22/84 “stores local transaction data from kiosks as well as customer data for use with customer recognition and recommendations.” EX1004, [0128]. “For this purpose, the system tracks customer orders and stores them on the server,” such that “the prior orders [can] be accessed from the central server 22 regardless of the particular store at which the customer is located.” *Id.*, [0089]; *see also id.*, [0030], [0097]; EX1002, ¶76.

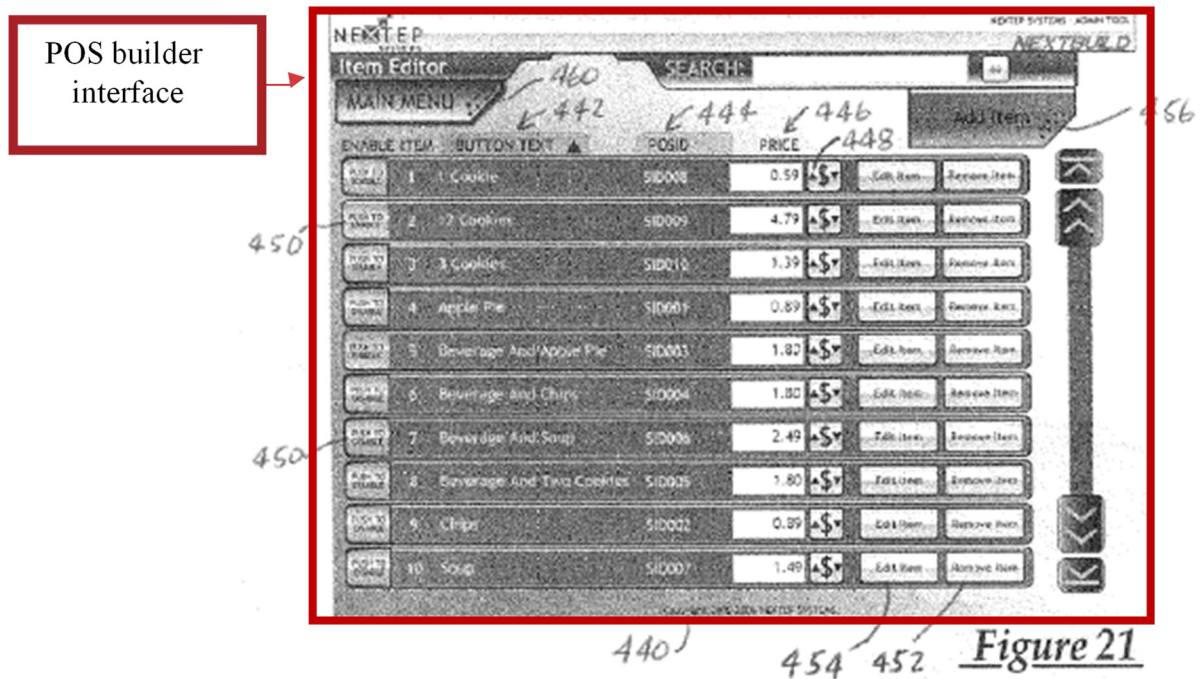
Thus, Woycik discloses each POS transaction is correlated with corresponding transaction data at the self-order application and/or its interactive-menu screens on kiosk 16/82. EX1002, ¶¶76-77.

B. Claim 2

As explained in 1[d] and 1[e], Woycik discloses a POS-builder interface (e.g., the administrative tool's user interface) used to access POS-builder software (e.g., administrative tool) for programmatic creation and modification of POS terminals. Instructions to the POS-builder interface are not formatted in programming code but instead occur using the interface. For example, the “menu editor screen of the administrative tool [] allows an administrator to create and edit the screens or menus” using a graphical-user interface. EX1004, [0041]; EX1002, ¶78.



Id., Fig. 11; *see also id.*, [0108], Figs. 12-13, 20. The “item/product editor screen ...enables the editing of the individual items/products for sale,” also using a graphical-user interface. *Id.*, [0051]; EX1002, ¶78.



Id., Fig. 21; *see also id.*, [0112], Fig. 22.

The administrative tool “enables administrators and store owners to make changes to the store offerings and customer interface without requiring any knowledge of the underlying code.” *Id.*, [0095]; *see also id.*, [0080], [0100]; EX1002, ¶79.

Accordingly, Woycik discloses and suggests this claim. EX1002, ¶¶78-80.

C. Claim 3

The '012 patent does not disclose details of what testing POS screens entails. As explained in 1[a], Woycik discloses POS-builder software (e.g., administrative tool) that allows an administrator to create and edit POS terminals. EX1002, ¶81.

A POSITA would have understood Woycik discloses and suggests iterative testing of POS terminals in real time using the administrative tool. For example, Woycik discloses “[u]pon exiting the administrative tool, it prompts the administrator to save the changes or discard changes.” EX1004, [0115], [0121]. Reviewing changes to save or discard them discloses and suggests testing POS terminals iteratively in real time. EX1002, ¶82.

As another example, “FIG. 12 illustrates a method of editing menus using the menu editor,” which involves an iterative process to view menu and item screens and/or make menu and item changes in real time before saving changes to the remote server. *Id.*, [0042]; EX1002, ¶83.

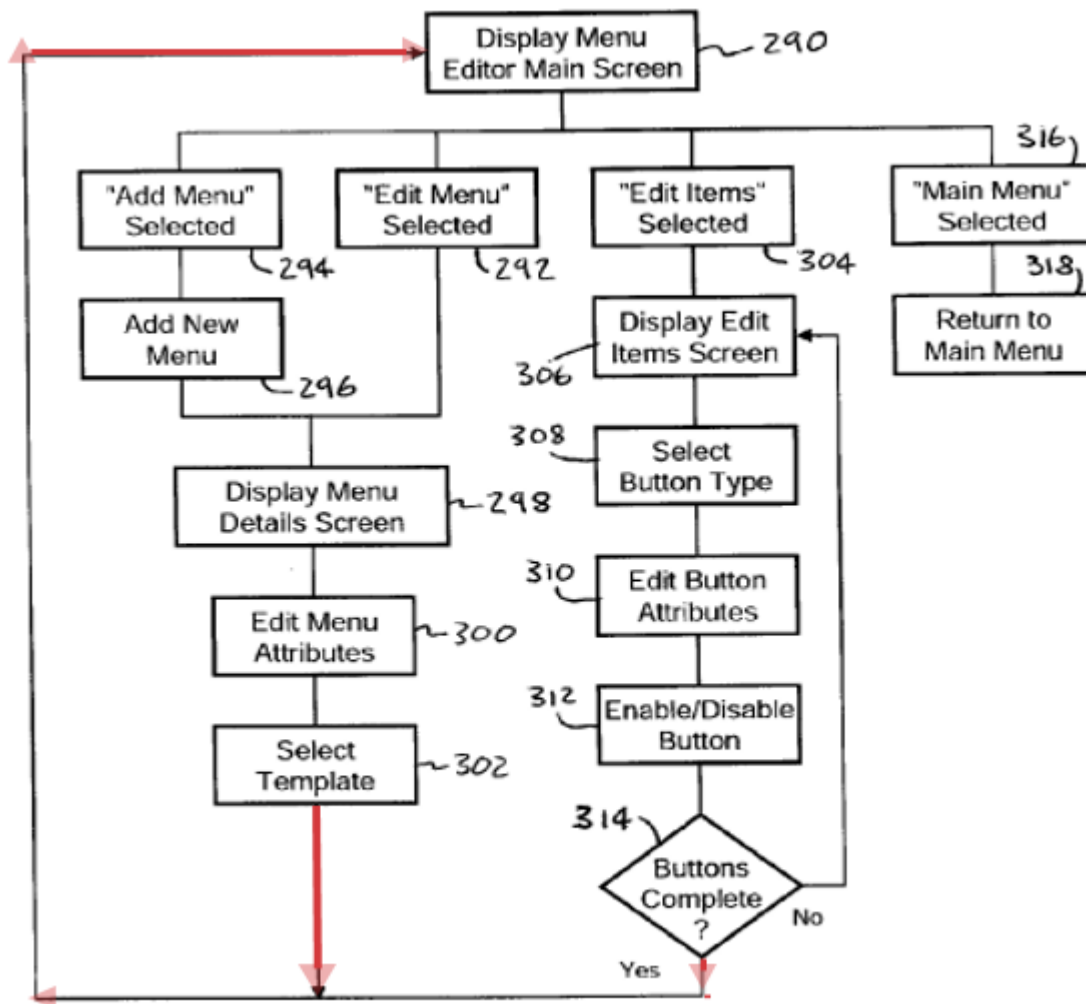


Figure 12

Id., Fig. 12. This iterative process discloses and suggests testing POS terminals iteratively in real time. EX1002, ¶83.

As another example, Woycik discloses “the remote server can automatically send the changes” or periodically send changes “by programming of the clients to periodically check for new configurations, such as by using predefined time intervals and/or during idle time when the kiosk is not in use.” *Id.*, [0122], [0115]; *see also id.*, [0093], [0117], [0120]-[0121]. The administrative tool also enables store owners

to update multiple servers from a single location, individually or as a group. *Id.*, [0121]. Controlling POS terminal updates by kiosk, group, during idle time, or at specific times discloses and suggests testing POS terminals iteratively in real time while POS terminals are simultaneously used. For example, a subset of kiosks (terminal devices) or stores would receive and test updated POS terminals while other POS terminals at terminal devices or stores continue operating undisturbed. EX1002, ¶83.

Accordingly, Woycik discloses and suggests this claim. EX1002, ¶¶81-85.

D. Claim 4

Woycik discloses terminal devices (e.g., kiosks 16/82) that include hardware “elements commonly found in a general purpose computer.” EX1004, [0077], Figs. 2, 3. A POSITA would have understood Woycik discloses kiosk 16/82 does not require specialized hardware or software, e.g., to run the self-order application. EX1002, ¶86.

As discussed in 1[a], Woycik discloses chain operator 20 has “web access to the central server 22” and the “administrative tool loaded on the central server 22” via Internet 18. EX1004, [0075], *see also id.*, [0017], Claim 21. Because the POS-builder interface (e.g., the administrative tool’s user interface) accesses the POS-builder software (e.g., the administrative tool) that runs on central server 22/84, the

POS-builder interface does not require specialized hardware or software at the terminal device. EX1002, ¶87.

To the extent Woycik does not disclose this claim, a POSITA would have been motivated to use general-purpose hardware and software (as opposed to specialized hardware or software) to reduce system cost, complexity, and maintenance. EX1002, ¶88.

Thus, Woycik discloses and suggests this claim. EX1002, ¶¶86-89.

E. Claim 5

Woycik discloses a central server (i.e., a web server) that “can be a general purpose computer.” EX1004, [0008]. Woycik discloses central server implements “base operating system 94, such as Microsoft Windows™ XP.” *Id.*, [0078]. As discussed in 1[a], Woycik discloses POS-builder software (e.g., administrative tool) installed on said web server (e.g., central server 22/84). Configuration changes made with the administrative tool and saved on central server 22/84 are then transmitted to kiosks at local stores. *See id.*, [0115], [0076], [0121]. A POSITA would have understood software for the POS-builder interface resides in and is executed from central server 22/84. EX1002, ¶90.

Woycik discloses and suggests no specialized hardware or software is required to implement central server 22/84. EX1004, Fig. 3. To the extent Woycik does not disclose central server is “a standard internet web server implemented with

standard web server hardware and software,” a POSITA would have been motivated to use standard hardware and software (as opposed to specialized hardware or software) to reduce system cost, complexity, and maintenance. EX1002, ¶91.

Woycik discloses “[w]hen the overall system includes a central server, for example, to coordinate multiple store locations, the table or *database can be stored at the central server.*” EX1004, [0030], *see also id.*, [0080], [0093], [0141]. A POSITA would have understood Woycik’s database discloses and suggests a relational database. To the extent Woycik does not disclose a “relational database” (EX1001, Claim 5) a POSITA would have been motivated to use a web server with a relational database to reduce the cost and complexity of the web server and improve data-retrieval speed. EX1002, ¶92.

Accordingly, Woycik discloses and suggests this claim. EX1002, ¶¶90-93.

F. Claim 6

As explained in 1[a], Woycik discloses POS-builder software (e.g., administrative tool) installed on said web server (e.g., central server 22/84). The administrative tool “enables the administrator *to create* and edit the *interactive menu screens.*” EX1004, Abstract. Woycik discloses the “*administrator ... may add a new menu.*” *Id.*, [0099]; *see also id.*, [0075], [0098], [0112], [0113], Fig. 11, Claims 1, 7. As discussed in 1[d], the POS terminals (e.g., self-order application and/or its interactive-menu screens) are generated by POS-builder software (e.g.,

administrative tool). *Id.*, [0057], [0076], Fig. 27. “[T]he administrative tool can include the same functions typically used to” add/configure kiosks “to create display screens (e.g., food ordering menus), to create a list of food items.” *Id.*, [0079]; EX1002, ¶94.

The central “server can automatically send the changes to the local server.” *Id.*, [0122], [0115], [0112], [0073], [0075]. The central server can install a new kiosk or restore an existing kiosk via the Internet. *Id.*, [0124], [0075], Fig. 27. EX1002, ¶95.

Accordingly, Woycik discloses and suggests this claim. EX1002, ¶¶94-96.

G. Claim 7

As explained in 1[a], Woycik discloses POS-builder software (e.g., administrative tool) installed on said web server (e.g., central server 22/84). The administrative tool “enables the administrator *to* create and *edit the interactive menu screens.*” EX1004, Abstract; *see also id.*, [0075], Claim 7. Woycik discloses the “*administrator may edit any menu* listed in the menu editor.” *Id.*, [0099]; *see also id.*, [0112], [0108], [0079]; EX1002, ¶97.

The central server can “automatically send the changes to the local server.” *Id.*, [0122], [0115], [0112], [0073], [0075]. The central server can also install a new kiosk or restore an existing kiosk via Internet. *Id.*, [0124], [0075], Fig. 27. EX1002, ¶98.

Accordingly, Woycik discloses and suggests POS-builder software configured to provide instructions to modify existing POS terminals, e.g., by modifying existing interfaces (e.g., editing menus, products, or categories) and by providing modified configuration information. EX1002, ¶¶97-100.

H. Claim 8

As discussed in 1[a], Woycik discloses an administrative tool running on the central server (i.e., the web server). Woycik discloses “the administrative tool 98 provides a graphical representation of menu options, button selections, images, text fields, etc. on the kiosk.” EX1004, [0095]. The system “can also be used by the administrators to access the administrative tools remotely using a standard web browser, rather than having to use a kiosk.” *Id.*, [0121]; *see also id.*, [0093] (“the web server provides a web based interface similar to the self-order application interface on the kiosks” for online ordering), [0115]; EX1002, ¶101.

To the extent Woycik does not disclose POS terminals accessible by a web browser, a POSITA would have been motivated to provide such functionality to allow a manager to view the same interfaces customers see in-store (i.e., the same look and feel), e.g., when editing items and menus via the administrative tool. Providing browser access to view user interfaces of software applications (including POS terminals) was known, and a POSITA would have reasonably expected success providing such access for Woycik’s POS terminals. EX1002, ¶102.

Thus, Woycik discloses and suggests this claim. EX1002, ¶¶101-103.

I. Claim 9

As discussed in 1[e], configuration changes (e.g., menu and item changes) made with the administrative tool at central server 22/84 are saved to the central server, then pushed to the kiosks at the local stores. EX1004, [0115], [0076], [0122]. The central “server can automatically send the changes to the local server,” such as kiosk 16/82. *Id.*, [0122]. Once generated, the POS terminals can take orders and store order data in the local server (kiosk 16/82). *Id.*, [0128], Fig. 28. A POSITA would have understood POS terminals at kiosk 16/82 operate independently of central server 22/84 because the local server periodically uploads those orders to the centralized data repository. *Id.*; EX1002, ¶104.

“[T]he software installed on each kiosk 80 includes a combination of a client computer program 92 (e.g., written in .NET) and user interface content 90 ...to generate the user interface on the touch screen.” EX1004, [0078]. Woycik discloses and suggests the POS terminals (e.g., self-order application and/or its interactive-menu screens) generated by POS-builder software (e.g., administrative tool) accessible at kiosk 16/82 operate independently of central server 22/84 (i.e., the web server). For example, Woycik discloses remote central server 22 “remotely diagnos[es] a kiosk” by “connect[ing] to local servers and/or client kiosks to run a diagnostic of each kiosk” “[d]uring periods when the kiosk is idle.” *Id.*, [0123].

“[A]n installation wizard [] loads all necessary files onto the kiosk, including any software, database, menu, configuration files and media necessary for use (blocks 582, 584).” *Id.*, [0124]; EX1002, ¶105.

Accordingly, Woycik discloses and suggests this claim. EX1002, ¶¶104-108.

J. Claim 10

Woycik discloses menu screens comprise “buttons that allow the customer to make selections among available items and options.” EX1004, [0100]. “Buttons can be directly added one at a time by the administrator” using the administrative tool. *Id.*, [0100], [0099]. An administrator can “edit the individual buttons and associate them with food items and options and associated button text, graphics, voiceovers, and button behaviors.” *Id.*, [0108]. By selecting “edit items,” the administrator can “edit the characteristics of each individual button on the menu.” *Id.*; EX1002, ¶109.

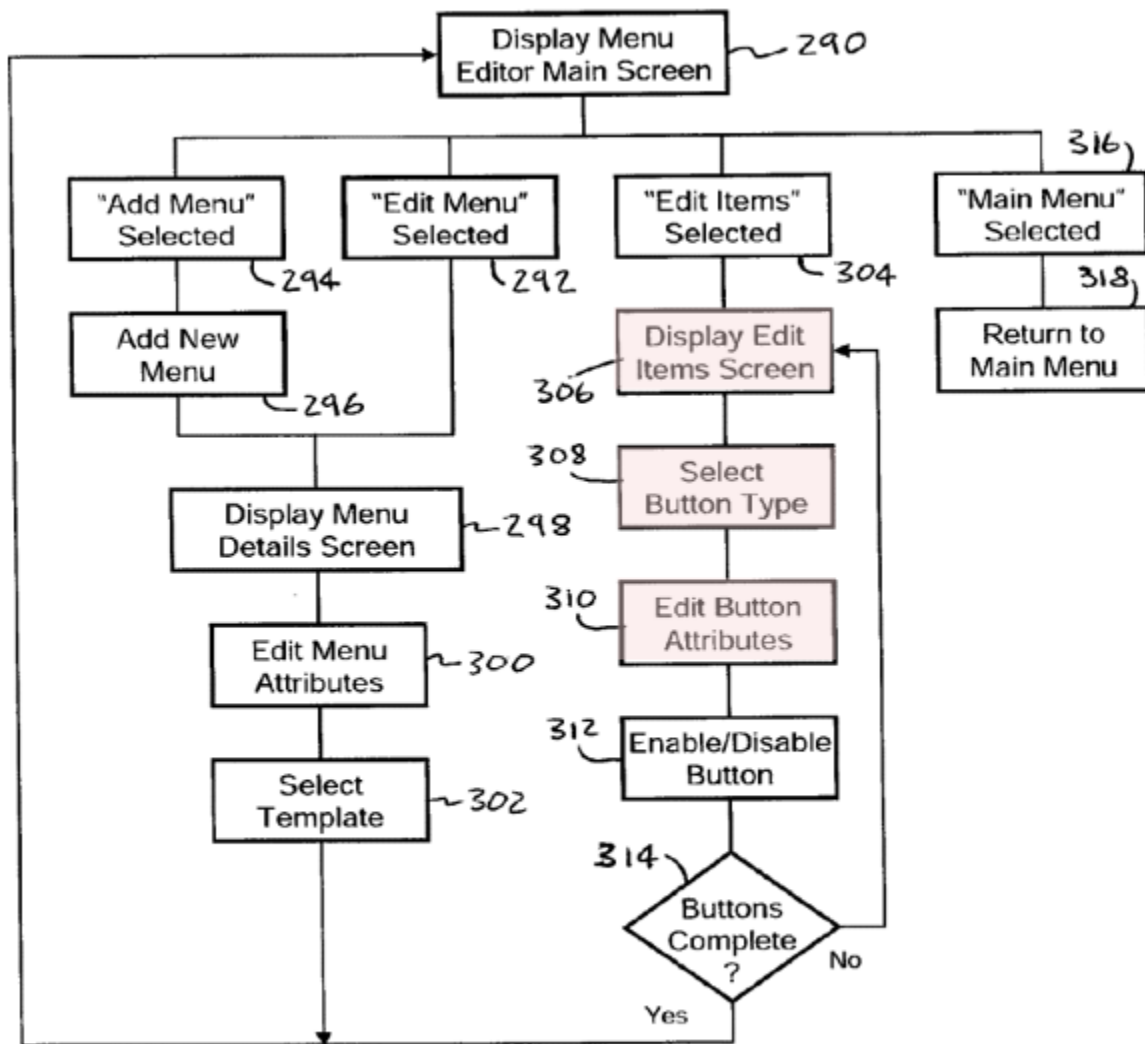


Figure 12

Id., Fig. 12; *see also id.*, [0095], [0108], Figs. 4-9, 14-19, 29-30, 34-38, 40 (illustrating different numbers, shapes, and arrangements of keys or buttons of interactive-menu screens of self-order application). Woycik discloses a library of templates representing interactive menu screens having buttons associated with functions and “organized into a particular arrangement.” *Id.*, [0107], Claims 7-20, [0019], [0099]-[0106], [0119], Figs. 14-19; EX1002, ¶109.

Accordingly, Woycik discloses and suggests this claim. EX1002, ¶¶109-110.

K. Claim 11

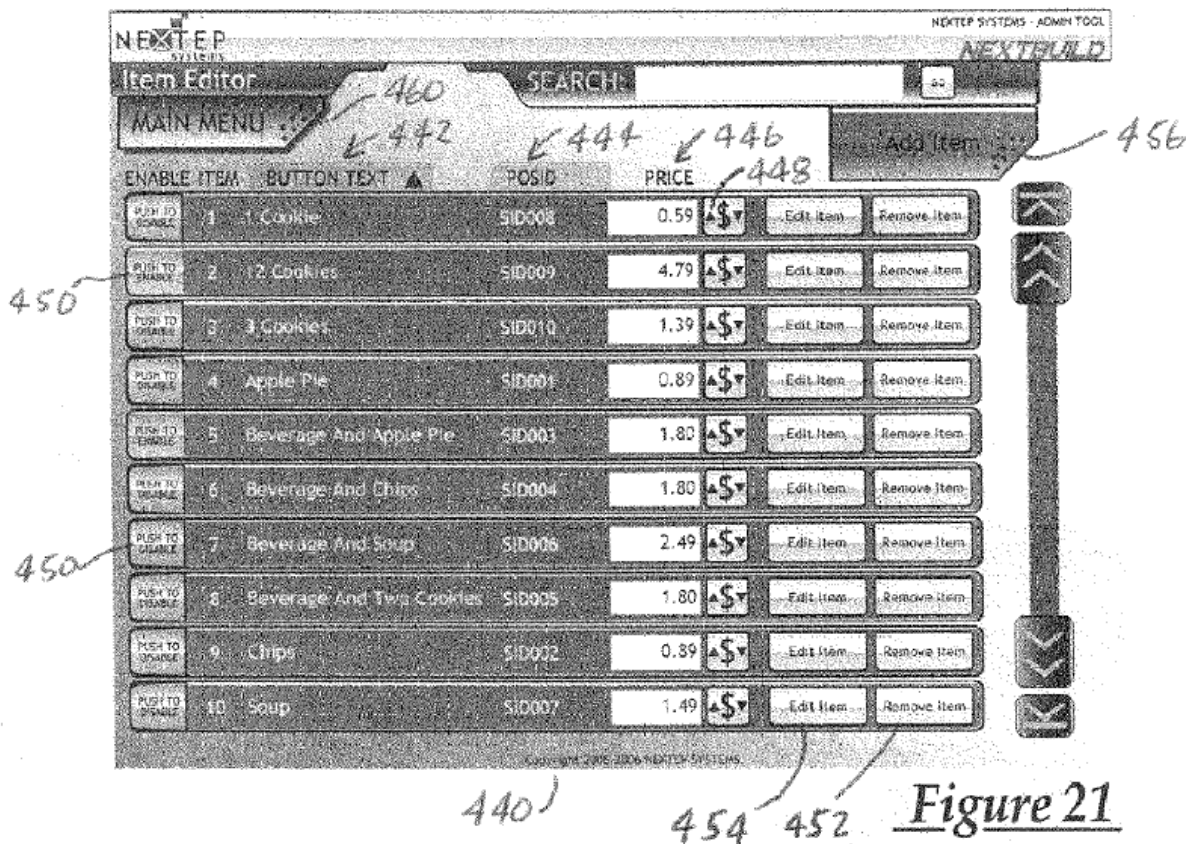
As discussed for claim 10, Woycik discloses the administrative tool's user interface enables an administrator to "edit the individual buttons and associate them with food items and options and associated button text, graphics, voiceovers, and button behaviors." EX1004, [0108]; *see also id.*, [0020], [0050], [0079], [0099], [0109], [0112]-[0113], Figs. 4-9, 12, 20-22. EX1002, ¶111.

Thus, Woycik discloses and suggests this claim. EX1002, ¶¶111-112.

L. Claim 12

As discussed in 1[d], Woycik discloses a POS-builder interface (e.g., administrative tool's user interface) with "functions ... to create a list of food items that are used on the different menu screens, and to edit the various attributes of the food items (e.g., name, associated graphic, price)." EX1004, [0079]. "When adding or editing an existing item, the administrative tool launches a separate items detail screen with multiple tabs to edit various item attributes." *Id.*, [0112]; *see also id.*, [0109], [0122]; EX1002, ¶113.

Item editor screen 440 (a POS-builder interface) enables attribution of attributes to items associated with selection keys or buttons:



Id. Fig. 21; *see also id.*, [0079], [0082], [0108], [0113], Figs. 4-9, 12, 20-22.

EX1002, ¶114.

Thus, Woycik discloses and suggests this claim. EX1002, ¶¶113-115.

M. Claim 13

As discussed for claim 12, Woycik discloses item editor screen 440 for editing item information. The item editor, like the menu editor, is part of the administrative tool stored on the central server (i.e., the web server). *See* §§ XI.A.2 (1[a]), XI.E (claim 5). Menu and item information, including attribute information, is maintained in a database at the central server. *See id.*, [0122] (“using the administrative tool on

the remote server to configure the menus and items locally stored there”), [0030], [0080], [0089], [0093], [0141], Fig. 3 (illustrating “Web Server/DB (.NET)” on central server). EX1002, ¶116.

Thus, Woycik discloses and suggests this claim. EX1002, ¶¶116-117.

N. Claims 14-20

Claims 14-20 recite similar limitations as Claims 1-13 and are obvious for the same reasons. EX1002, ¶118.

Claim	Corresponding Section
14[pre]	§§ XI.A.1, XI.A.2 (1[pre], 1[a]).
14[a]	§§ XI.A.3, XI.A.8 (1[b],1[g]).
14[b]	§ XI.A.4 (1[c]).
14[c]	§§ XI.A.5, XI.A.6 (1[d], 1[e]).
14[d]	§ XI.A.7 (1[f]).
14[e]	§ XI.A.8 (1[g]).
14[f]	§ XI.A.9 (1[h]).
15	§ XI.C (claim 3).
16	§ XI.H (claim 8).
17	§ XI.I (claim 9).
18	§ XI.J (claim 10).
19	§ XI.K (claim 11).
20	§§ XI.L, XI.M (claims 12, 13).

XII. GROUND 2: OLSON COMBINED WITH WOYCİK RENDERS OBVIOUS CLAIMS 1-20

A. Motivation to Combine

Olson discloses “[a POS] system with a web-based back-office system.” EX1006, Claim 1, [Abstract]. “The POS terminals communicate via HTTP protocol ... with Back-office BO software, which is implemented on web servers 24.” *Id.*, [0019]. “Part of the POS application, the BO interface is continuously running in the background,” and “the BO interface requests update from the BO such as new items, price changes, employees, etc.” *Id.*. “[T]he BO software and data can be viewed from any store employee at any PC who has Internet access 26 and a password.” *Id.*, [0019], Claim 5, [0026]-[0027]. Olson contemplates configuring POS terminals (*id.*, [0024]) but does not disclose POS-builder software. EX1002, ¶119.

As discussed in Ground 1, Woycik discloses POS-builder software (e.g., the administrative tool) installed on central server 22 and is remotely accessible with “web access.” EX1004, [0075]. The administrative tool provides “a menu editor that enables the administrator to create and edit the interactive menu screens provided by the self-order application at the self-service client terminals.” *Id.*, [0016]; *see also id.*, [0041], [0050], [0097] (item editor 222), Figs. 11, 20-22. Users access the administrative tool using graphical-user interfaces (POS-builder interfaces) to

programmatically create and edit user interfaces of the kiosk self-order application (POS terminals) in real time over the Internet. EX1002, ¶120.

A POSITA would have been motivated to add Woycik's web-based administrative tool and/or its features to Olson's web-based POS system and would reasonably expect the combination to improve the usability and configurability of Olson's web-based POS system. For example, the combination would (i) allow managers to remotely configure and manage POS terminals for store locations, (ii) reduce the cost and time associated with manually creating and editing Olson's POS terminals, (iii) eliminate delays inherent in coding or configuring POS-terminal devices individually; (iv) reduce or eliminate training required to create and edit POS terminals, and (v) further realize the advantages of using the Internet to deliver known POS-system software and functionality. EX1002, ¶121.

Because Olson's back-office server already enables managers to remotely access BO software and data over the Internet and provides POS-terminal devices with "new items, price changes, employees, etc." (EX1001, 4:32), a POSITA would have been motivated to add Woycik's POS-builder software to Olson's BO server to provide user-friendly design and modification of POS terminals, also via the Internet and a web server. For example, adding Woycik's POS-builder software on Olson's BO server (e.g., as a BO application) would provide merchants with "a menu editor ... to create and edit the interactive menu screens." EX1004, [0016]. These

changes could then be automatically sent to local terminal devices (e.g., via Olson's BO interface). *Id.*, [0115], [0076], [0026]-[0027]. Such combination would also enable merchants with multiple locations to update and manage menus efficiently and quickly across stores, while ensuring consistency at different locations. All that would be required for a merchant to create or modify a POS interface, conduct transactions, and analyze data would be a terminal device with web access and an Internet connection. Such a combination would likewise better serve merchants (including small/mobile merchants) by minimizing POS terminal maintenance costs and providing a more comprehensive web server-based POS system than Olson's alone. Overall, such a combination represents the mere application of a known technique (e.g., the POS builder of Woycik's administrative tool) to a known system (e.g., Olson's web-based back-office system) ready for improvement (i.e., to improve features and functionality provided by Olson's POS system). The combination also reflects a predictable use of these prior-art elements according to their established functions. A POSITA would have had a reasonable expectation of success adding Woycik's administrative tool to Olson given the similarity of the POS architectures, including a remote central server that is accessible and communicates via the Internet with local, in-store POS-terminal devices. Olson and Woycik are both directed to improving POS systems and software via the Internet

and include a remotely accessible web server for administrative tasks. EX1002, ¶¶122-123.

B. Claim 1

1. 1[pre]

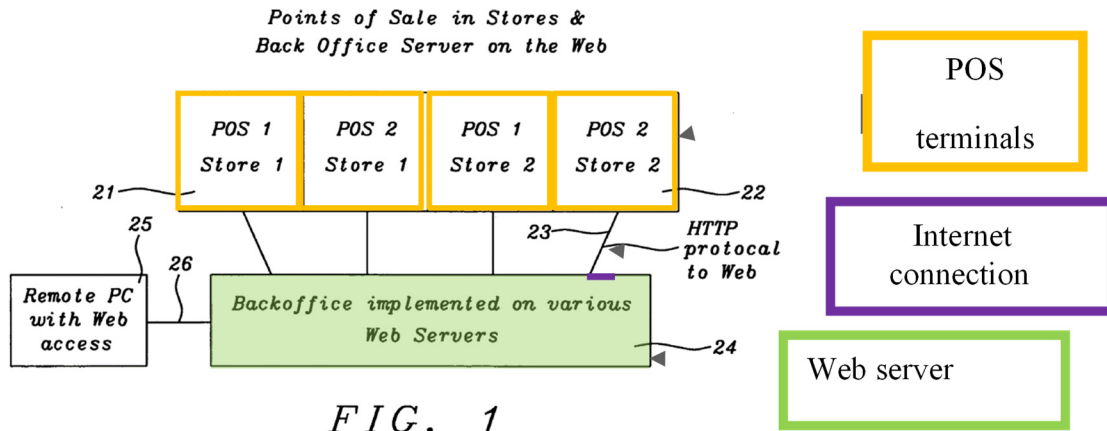
Olson discloses “[a POS] system with a web-based back-office system.” EX1006, claim 1, Abstract. “The POS terminals communicate via HTTP protocol ... with Back-office BO software, which is implemented on web servers 24.” *Id.*, [0019]; *see also id.*, [0010], [0020], [0024]; EX1002, ¶124.

Woycik discloses a web-based POS builder system. *See* § XI.A.1 (1[pre]); EX1002, ¶125.

Thus, the Olson/Woycik combination discloses and suggests each limitation of 1[pre]. EX1002, ¶¶124-126.

2. 1[a]

Olson discloses “[a POS] system with a web-based back-office system.” EX1006, Claim 1, Abstract. “The POS terminals communicate via HTTP protocol ... with Back-office BO software, which is implemented on web servers 24.” *Id.*, [0019]. Figure 1 illustrates back-office “web servers 24” (*id.*) connected to POS 21 in Store 1 and POS 22 in Store 2:



Id., Fig. 1; *see also id.*, Fig. 4; EX1002, ¶127.

Woycik discloses a web server (e.g., central server 22/84) with POS-builder software (e.g., administrative tool) installed thereon. *See* § XI.A.2 (1[a]); EX1002, ¶128.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶129. In this modified system, Olson's web server (e.g., web server 24/36) would have POS-builder software (e.g., Woycik's administrative tool) installed thereon. *Id.*

Thus, the Olson/Woycik combination discloses and suggests each limitation of 1[a]. *Id.*, ¶¶127-130.

3. 1[b]

Olson discloses POS-terminal devices in stores:

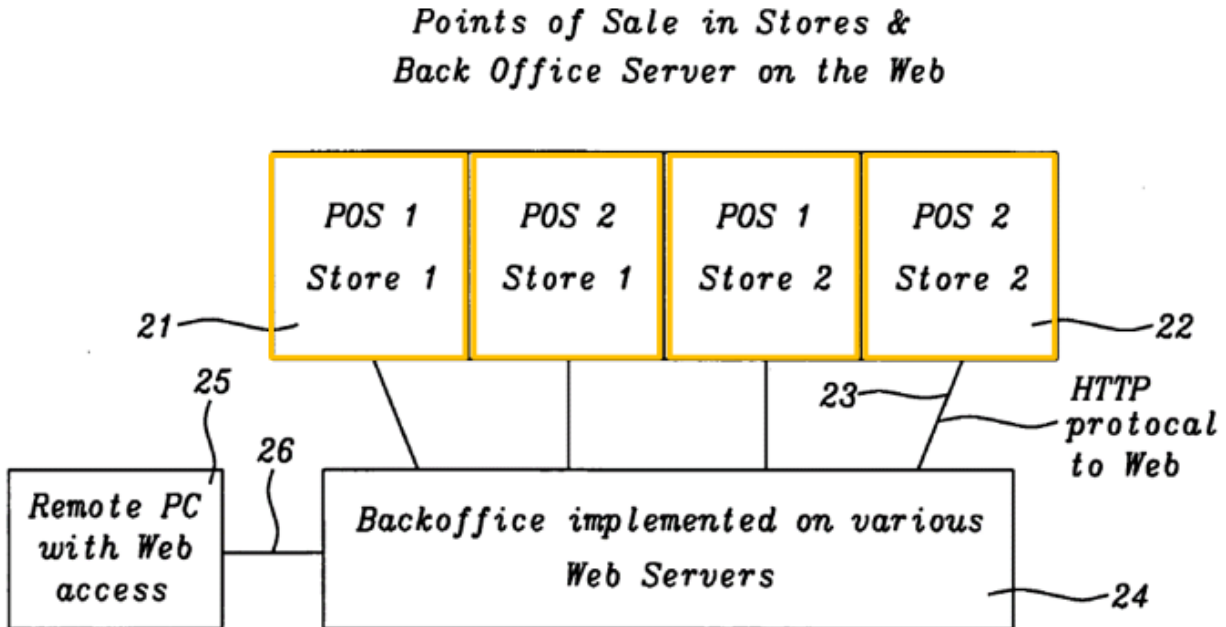


FIG. 1

EX1006, Fig. 1; *see also id.*, Abstract, [0019], [0021], [0023], Fig. 4. EX1002, ¶131.

Each POS-terminal device 21/22 is implemented with “personal computer hardware and software,” and “represents a single cash register in a store, retail location, or business location.” *Id.*, [0012], [0017]. Messages are displayed on the “POS screen” of the POS-terminal device. *Id.*, [0023]. Olson discloses that POS-terminal devices communicate with the web server via the Internet. EX1006, [0019]-[0020]. Thus, Olson discloses one or more POS terminals (e.g., POS-screen

displays⁸) accessible at one or more terminal devices (e.g., “POS transaction engine terminals”). EX1002, ¶131.

Woycik discloses POS terminals (e.g., self-order application and/or its interactive-menu screens) generated by POS-builder software (e.g., administrative tool) installed on a web server and accessible at one or more terminal devices (e.g., kiosk 16/82). *See* § XI.A.3 (1[b]); EX1002, ¶132.

As discussed above, a POSITA would have been motivated to implement Woycik’s administrative tool and/or its features on Olson’s web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶133. In this modified system, POS terminals generated by POS-builder software implemented at Olson’s web server 24/36 would be accessible at terminal devices (e.g., “POS transaction engine terminals” via Olson’s BO interface). EX1006, Abstract. Alternatively, Woycik’s kiosk server 16/82 could be used as a terminal device to interface with the administrative tool on Olson’s web server 24/36. EX1002, ¶133.

⁸ Olson uses the terms “POS terminal” and “POS transaction engine terminals” interchangeably to refer to a POS-terminal *device*, and uses the term “POS screen” to refer to what the ’012 patent claims call a “POS terminal.” *See supra* n.4; EX1002, ¶131 n.5.

4. 1[c]

Woycik discloses POS terminals (e.g., self-order application and/or its interactive-menu screens) configured to accept POS transactions and collect corresponding transaction data (e.g., customer and/or order data). *See* § XI.A.4 (1[c]); EX1002, ¶135.

Olson discloses POS terminals configured to accept POS transactions and collect corresponding transaction data. EX1006, [0017] (“All transaction data is stored in a relational database on the hard drive in the POS.”), [0019], [0020] (“The POS such as 21 send transaction data to the BO in the form of an HTTP post or communication.”). EX1002, ¶136.

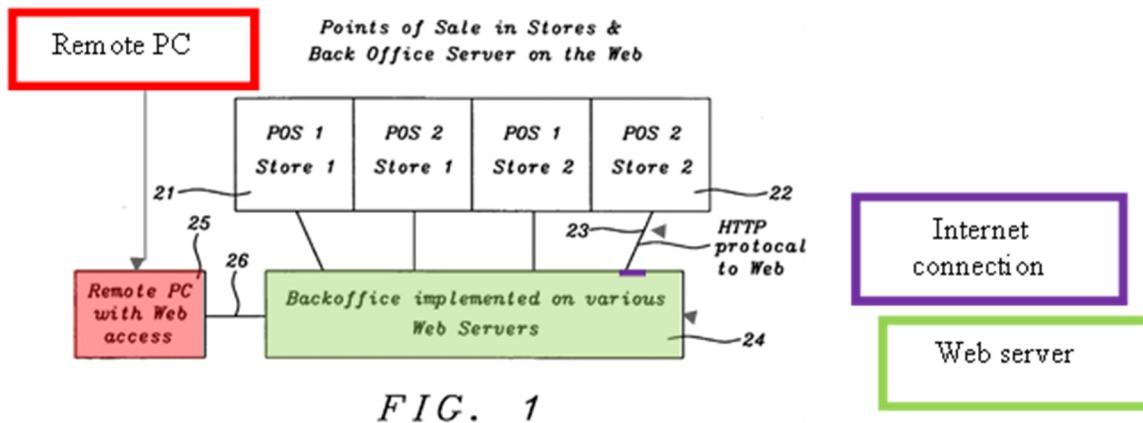
As discussed above, a POSITA would have been motivated to implement Woycik’s administrative tool and/or its features on Olson’s web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶137. In this modified system, the administrative tool implemented on Olson’s web server 24/36 would generate POS terminals (e.g., self-order application and/or its interactive-menu screens) configured to accept POS transactions and collect transaction data at terminal devices (e.g., “POS transaction engine terminals” and/or Woycik’s kiosk 16/82). *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests each element of this limitation. EX1002, ¶¶135-138.

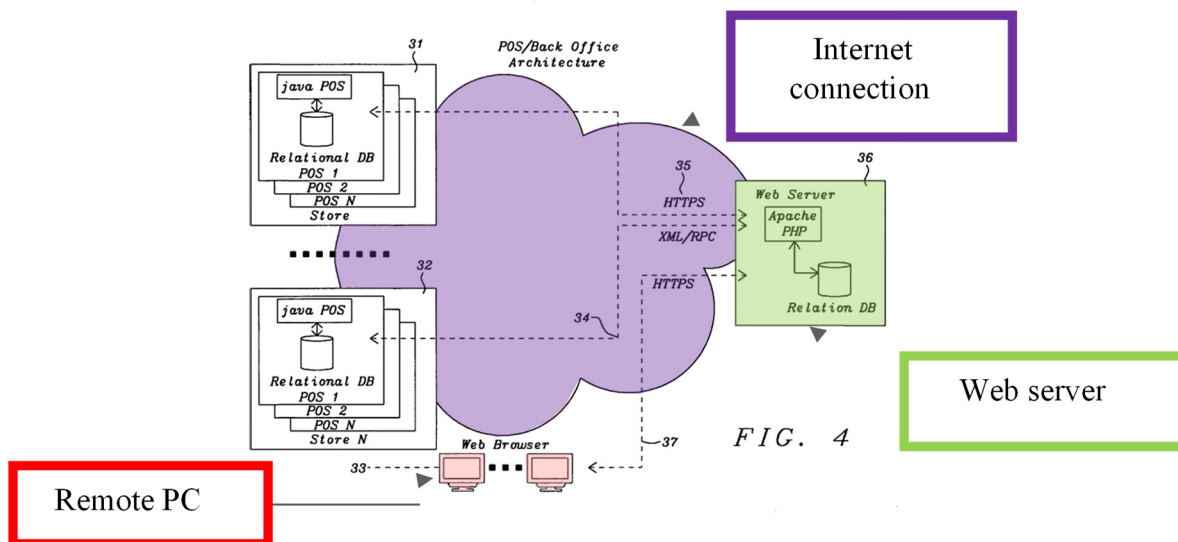
5. 1[d]

Olson “allows remote monitoring of both the POS and back-office systems from anywhere via the web.” EX1006, [0027]; *see also id.*, [0019], Claim 5. EX1002, ¶139.

Figures 1 and 4 illustrate remote PCs connecting via web browsers over the Internet to



web servers 24/36:



Id., Figs. 1, 4; *see also id.*, Abstract, [0004], [0011], [0026]. EX1002, ¶140.

Woycik discloses a POS-builder interface (e.g., the administrative tool's user interfaces) for accessing POS-builder software (e.g., administrative tool) configured to be accessible via network communication (e.g., via web access) with said web server (e.g., central server 22/84) over a communications network (e.g., the Internet). *See* § XI.A.5 (1[d]); EX1002, ¶141.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶142. In this modified system, Woycik's administrative tool installed on Olson's web server 24/36 would provide a POS-builder interface (e.g., the administrative tool's user interface) configured to be accessible via network communication (e.g., via web access over the Internet) with said web server (e.g., web server 24/36) over a communications network (e.g., the Internet). *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests each element of this limitation. EX1002, ¶¶139-143.

6. 1[e]

Woycik discloses a POS-builder interface (e.g., the administrative tool's user interface) configured to be utilized to access said POS-builder software (e.g., the administrative tool) for programmatically creating or modifying said one or more

POS terminals (e.g., the self-order application and/or its interactive-menu screens) in real time over the communications network (e.g., Internet). *See* § XI.A.6 (1[e]); EX1002, ¶144.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶145. In this modified system, Woycik's administrative tool installed on Olson's web server 24/36 is configured to access said POS-builder software (e.g., the administrative tool) for programmatically creating or modifying said one or more POS terminals (e.g., the self-order application and/or its interactive-menu screens) in real time over the communications network (e.g., Internet). For example, said POS terminals would be saved at web server 24/36 and accessible at terminal devices (e.g., "POS transaction engine terminals" and/or at Woycik's kiosk 16/82) in real-time. EX1006, Abstract, [0019]; EX1004, [0072], [0115], [0122]; EX1002, ¶145.

Accordingly, the Olson/Woycik combination discloses and suggests each element of this limitation. EX1002, ¶¶144-146.

7. 1[f]

Woycik discloses POS-builder software (e.g., the administrative tool) configured to interact with POS terminals (e.g., the self-order application and/or its

interactive-menu screens) over the communications network (e.g., Internet) for the POS builder system to perform functions using instructions sent from the POS-builder interface (e.g., instructions for menu and item changes). *See* § XI.A.7 (1[f]); EX1002, ¶147.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶148. In this modified system, Woycik's administrative tool installed on Olson's web server 24/36 is POS-builder software that interacts with said POS terminals (e.g., the self-order application and/or its interactive-menu screens) at the server and at terminal devices over the communications network (e.g., Internet) for the POS-builder system to perform functions using instructions sent from the POS-builder interface (e.g., instructions for menu and item changes). *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests each element of this limitation. EX1002, ¶¶147-149.

8. 1[g]

As discussed in 1[b], Olson discloses that POS terminals communicate with BO software on web server 24/36 via HTTP. EX1006, [0019], [0020] ("The POS such as 21 send transaction data to the BO in the form of an HTTP post or communication."); EX1002, ¶150.

Woycik discloses POS transactions and corresponding transaction data from POS terminals (e.g., the self-order application and/or its interactive-menu screens) on kiosks 16/82 are transmitted to central server via the Internet. *See* § XI.A.8 (1[g]). As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶152. In this modified system, POS transactions and corresponding transaction data from POS terminals (e.g., the self-order application and/or its interactive-menu screens) at terminal devices (e.g., "POS transaction engine terminals" and/or Woycik's kiosk 16/82) would be transmitted to Olson's web server 24/36 via the Internet. EX1002, ¶¶151-152.

Accordingly, the Olson/Woycik combination discloses and suggests each element of this limitation. EX1002, ¶¶150-153.

9. 1[h]

Woycik discloses each POS transaction is correlated with corresponding transaction data at the self-order application and/or its interactive-menu screens at kiosk 16/82. *See* § XI.A.9 (1[h]). Olson also discloses each POS transaction is correlated with corresponding data at POS terminals of terminal devices. EX1006, [0017]-[0020]; EX1002, ¶154.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶155. In this modified system, each POS transaction is correlated with corresponding transaction data at said one or more POS terminals (e.g., the self-order application and/or its interactive-menu screens) on terminal devices. *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests each element of this limitation. EX1002, ¶¶154-156.

C. Claim 2

Woycik discloses a POS-builder interface (e.g., the administrative tool's user interface) for programmatic creation and modification of POS terminals wherein instructions to the POS-builder interface are not formatted in programming code. *See* § XI.B (claim 2); EX1002, ¶157.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶158. In this modified system, instructions to the POS-builder interface are not formatted in programming code. *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests this claim. EX1002, ¶¶157-159.

D. Claim 3

Woycik discloses and suggests iterative testing of POS terminals in real time using the administrative tool while POS terminals are operable to accept POS transactions. *See* § XI.C (claim 3). EX1002, ¶160.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶161. In this modified system, POS terminals would be tested iteratively in real time while said POS terminals are operable to accept POS transactions. *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests this claim. EX1002, ¶¶160-162.

E. Claim 4

Woycik discloses and suggests a POS-builder interface and POS terminals configured to be implemented without specialized hardware or software at a given terminal device. *See* § XI.D (claim 4). Olson also discloses and suggests POS terminals configured to be implemented without specialized hardware or software at a given terminal device. *See* § XII.B.3 (1[b]); EX1002, ¶163.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet.

EX1002, ¶164. In this modified system, neither the POS-builder interface (e.g., administrative tool's user interface) nor POS terminals (e.g., the self-order application and/or its interactive-menu screens) would require specialized hardware or software at terminal devices. *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests this claim. EX1002, ¶¶163-165.

F. Claim 5

Olson discloses a standard internet web server implemented with standard web-server hardware and software, using one or more relational databases. EX1006, [0012] (“The web server is implemented with web server hardware and software, also using one or more relational databases.”), [0026]. Olson discusses drawbacks associated with custom POS software and does not disclose or suggest a need for specialized web-server hardware or software. *Id.*, [0006]; EX1002, ¶166.

Woycik discloses software for the POS-builder interface resides in and is executed from the web server and discloses and suggests standard web-server hardware and software. *See* § XI.E (claim 5); EX1002, ¶167.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶¶166-169.

G. Claim 6

Woycik discloses the administrative tool is configured to provide instructions to add new POS terminals. *See* § XI.F (claim 6). As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶¶170-171.

H. Claim 7

Woycik discloses the administrative tool is configured to modify existing POS terminals. *See* § XI.G (claim 7). As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶¶172-173.

I. Claim 8

Woycik discloses and suggests said one or more POS terminals are configured to be accessible by a web browser. *See* § XI.H (claim 8); EX1002, ¶174.

Olson discloses "BO software and data can be viewed from any store employee at any PC who has Internet access 26 and a password" via web access to the BO server, and "a real-time status of said POS terminals and said back-office web servers is obtained at remote locations via personal computers with browser based web access." EX1006, [0019], Claims 5-20, [0026]-[0027]; EX1002, ¶175.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features as a BO application on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via the Internet. EX1002, ¶176. In this modified system, POS terminals (e.g., self-order application and/or its interactive-menu screens) are accessible by a web browser accessing Olson's web server 24/36 with POS-builder software (e.g., administrative tool). For example, POS terminals would be viewable via browser access as "BO software and data" on Olson's web server (EX1006, [0019]). EX1002, ¶¶174-177.

J. Claim 9

Olson discloses that "if the web goes down, the POS terminal continues to operate. There is a loose coupling of the POS to the back office (BO). The POS to BO connection is not required for the basic business functions of the POS." EX1006, [0017]. Olson's POS-terminal devices and related software are thus configured to operate independently of the web server. EX1002, ¶178.

Woycik also discloses that said POS terminals (e.g., self-order application and/or its interactive-menu screens), once generated, operate independently of the web server. *See* § XI.I (claim 9); EX1002, ¶179.

As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features as a BO application on Olson's web

server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶180. In this modified system, POS terminals (e.g., self-order application and/or its interactive-menu screens) at terminal devices (e.g., at “POS transaction engine terminals” and/or at Woycik’s kiosk 16/82) operate independently of the web server. EX1002, ¶¶178-181.

K. Claim 10

Woycik discloses and suggests a number, shape, and arrangement of selection keys or buttons for POS terminals are specified from the administrative tool’s manager interface. *See* § XI.J (claim 10). As discussed above, a POSITA would have been motivated to implement Woycik’s administrative tool and/or its features on Olson’s web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶¶182-183.

L. Claim 11

Woycik discloses and suggests this claim. *See* § XI.K (claim 11). As discussed above, a POSITA would have been motivated to implement Woycik’s administrative tool and/or its features on Olson’s web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶¶184-185.

M. Claim 12

Woycik discloses attributes attributed to items from the administrative tool’s manager interface. *See* § XI.L (claim 12). As discussed above, a POSITA would

have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶¶186-187.

N. Claim 13

Woycik discloses attributes are stored, retrievable, and changeable from a database stored on the web server. *See* § XI.M (claim 13). Olson discloses a web server using one or more relational databases. EX1006, [0012], [0026]. As discussed above, a POSITA would have been motivated to implement Woycik's administrative tool and/or its features on Olson's web server 24/36 to allow programmatic creating and editing of POS terminals in real time via Internet. EX1002, ¶188. In this modified system, item attributes would be stored, retrievable and changeable from a database stored on Olson's web server 24/36. *Id.*

Accordingly, the Olson/Woycik combination discloses and suggests this claim. EX1002, ¶¶188-189.

O. Claims 14-20

Claims 14-20 recite similar limitations as Claims 1-13 and are obvious for the same reasons. EX1002, ¶190.

Claim	Corresponding Section
14[pre]	§§ XII.B.1, XII.B.2 (1[pre], 1[a]).
14[a]	§§ XII.B.3, XII.B.8 (1[b],1[g]).

Claim	Corresponding Section
14[b]	§ XII.B.4 (1[c]).
14[c]	§§ XII.B.5, XII.B.6 (1[d], 1[e]).
14[d]	§ XII.B.7 (1[f]).
14[e]	§ XII.B.8 (1[g]).
14[f]	§ XII.B.9 (1[h]).
15	§ XII.D (claim 3).
16	§ XII.I (claim 8).
17	§ XII.J (claim 9).
18	§ XII.K (claim 10).
19	§ XII.L (claim 11).
20	§§ XII.M, XII.N (claims 12,13).

XIII. GROUND 3: TENGLER IN VIEW OF THE KNOWLEDGE OF A POSITA RENDERS OBVIOUS CLAIMS 1-20

A. Claim 1

1. 1[pre]

Tengler discloses an order processing system for merchants, such as restaurants. EX1005, Abstract, [0003]-[0006], [0016]; EX1002, ¶191.

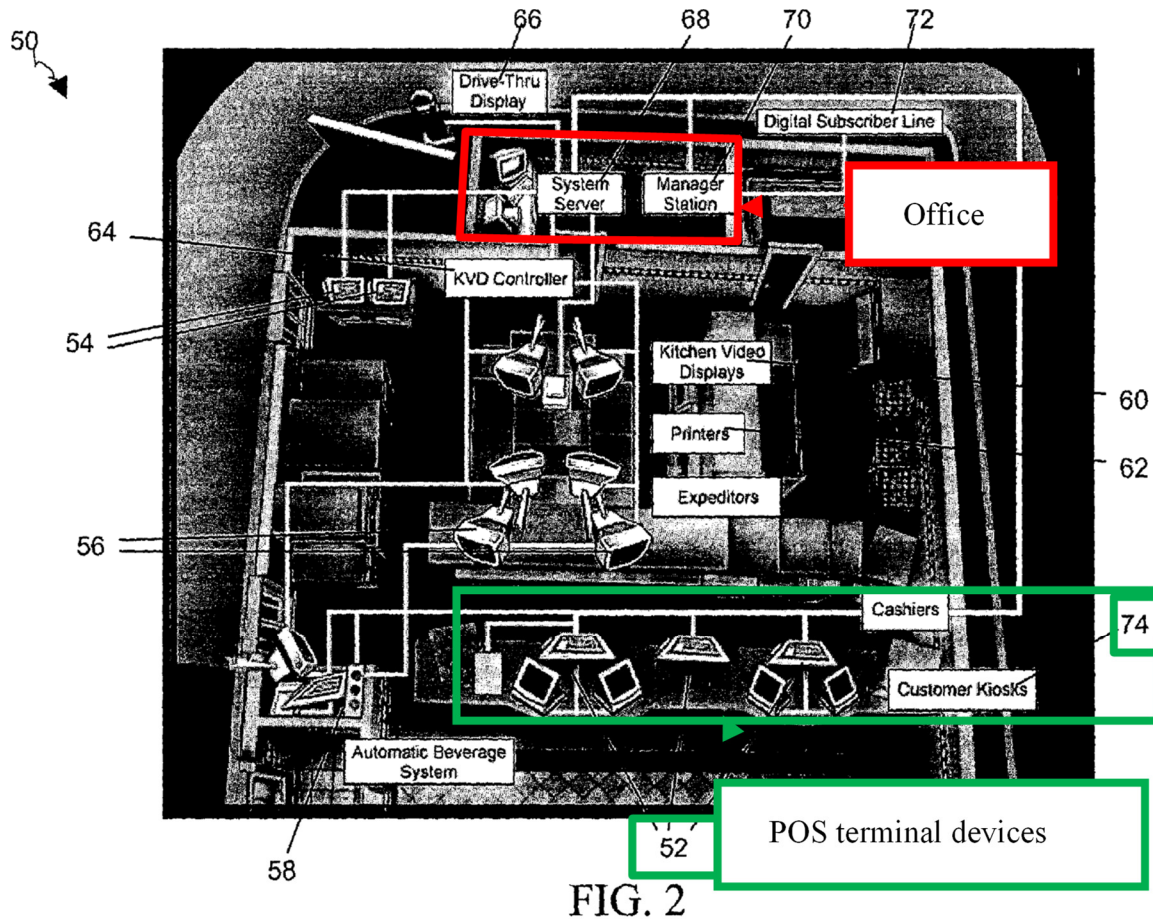


FIG. 2

Id., Fig. 2. Cashiers at front counter 4 use “order terminals 52[] to enter orders,” customers use “self-service kiosks 74,” and order takers at remote call centers use call-center terminal equipment. *Id.*, [0062], [0074], [0112]; EX1002, ¶191.

Tengler’s system allows “a manager to access a management database of a quick-serve restaurant location remotely through a web interface.” *Id.*, [0022]; *see also id.*, claim 42, [0073]. “A user interface designer 614 allows management to edit the user interface of the register and self-service applications and also saves the specifications in the database 602.” *Id.*, [0103]; EX1002, ¶¶192-193.

Tengler discloses the elements of 1[pre]. EX1002, ¶¶191-194.

2. 1[a]

Tengler discloses a web server. Main server 464 in office 24 “runs the system server software 604, the database 602, the store-resident web server software 620, the production display service 609, and the drive-through display service 610.” *Id.*, [0116]; EX1002, ¶195.

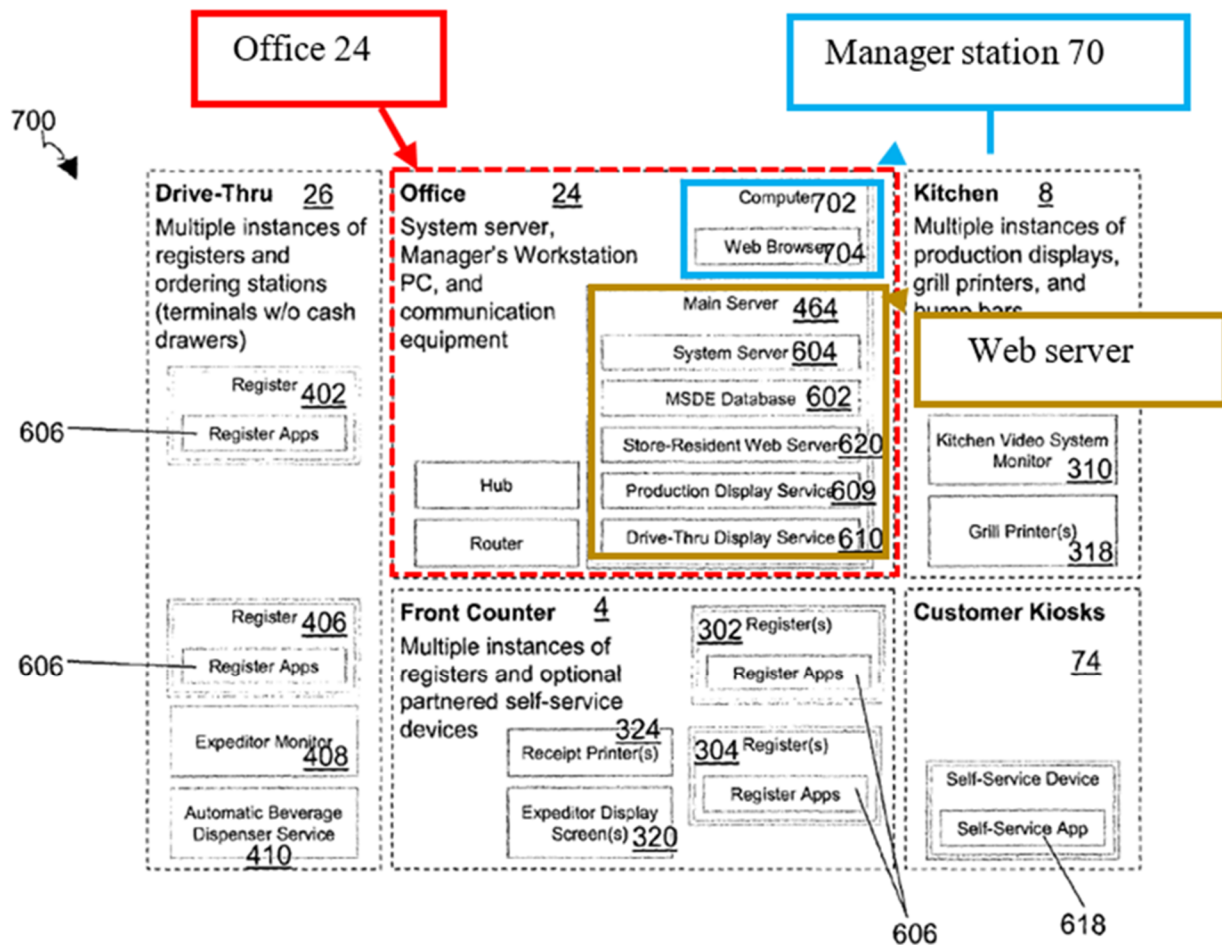


FIG. 15

Id., Fig. 15.

Office 24 includes computer 702 (also called manager station 70) with web browser 704 that enables managers “to view food production and service activity in the restaurant” and “modify menus and change prices.” *Id.*, [0073]; *see also id.*, [0024], [0103] (“The store resident web server 620 also allows managers to edit the user interface of the register and self-service applications.”), Claim 42; EX1002, ¶196.

Tengler discloses POS-builder software. “A user interface designer 614 allows management to edit the user interface of the register and self-service applications and also saves the specifications in the database 602.” *Id.*, [0103]. The restaurant manager uses web browser 704 to “modify menus and change prices using interfaces.” *Id.*, [0073]. As explained below in 1[d] and 1[e], interfaces 192 and 196 are POS-builder interfaces utilized to access user-interface designer 614. EX1002, ¶197.

Tengler discloses and suggests user-interface designer (POS-builder software) is installed on main server 464. Main server 464 comprises system (RMS) server 604, MSDE database 602, and store-resident web server 620. EX1005, Fig. 15. User-interface designer 614 saves data in database 602 and interfaces with web server 620, both on main server 464. *See id.*, [0107] (“store-resident web server 620 and the user interface designer 614 directly connect with database 602”), [0109], [0073]; EX1002, ¶198.

To the extent Tengler does not disclose the user interface designer is installed on main server 464, a POSITA would have been motivated to install it there because user-interface designer 614 “directly connect[s]” with database 602 and interfaces with web server software 620, both on main server 464. *Id.*, [0107], [0109] [0073]. Installing user-interface designer 614 on main server 464 would maximize speed and reliability of communications between web-server software 620, user-interface designer 614, and database 602 by avoiding reliance on a network-connected device other than main server 464 to facilitate such interactions. A POSITA would have had a reasonable expectation of success installing user-interface designer on main server 464 because other RMS server applications are stored on there already. A POSITA would have been motivated to install user-interface designer on main server 464 and discouraged from installing it elsewhere. EX1002, ¶199 (citing Woycik and Olson).

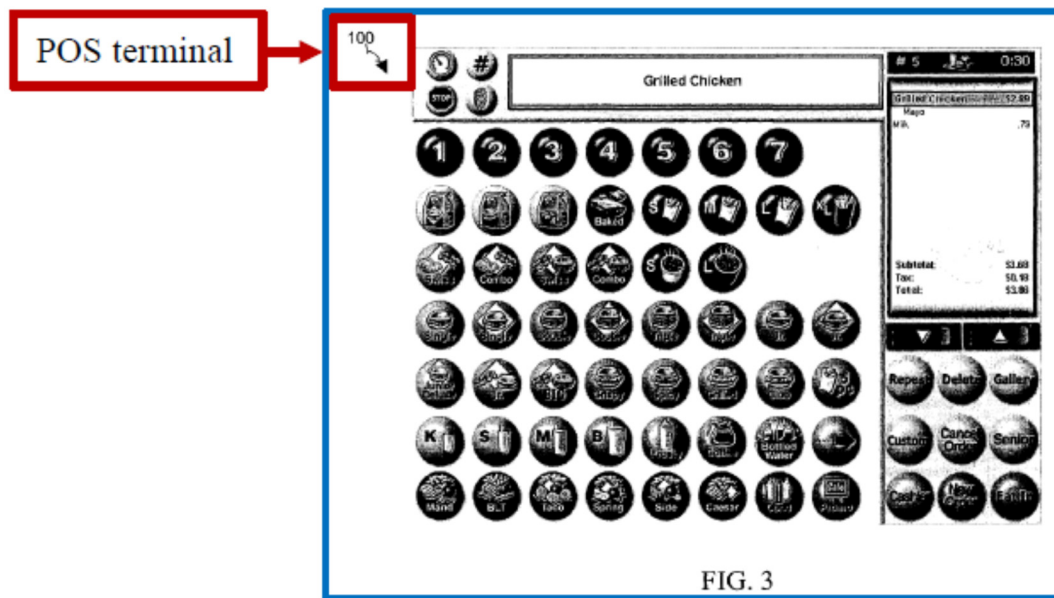
Accordingly, Tengler discloses and suggests a web server (e.g., main server 464) including POS-builder software (e.g., user-interface designer⁹) installed thereon. EX1002, ¶¶195-200.

3. 1[b]

⁹ References herein to “user-interface designer” include related software and system objects. *See* EX1005, Fig. 16, [0121]. EX1002, ¶200 n.6.

Tengler discloses that the POS-builder software (e.g., user-interface designer) generates POS terminals (e.g., register and self-service applications and/or their user interfaces) configured to be accessible at one or more terminal devices (e.g., terminals 52, kiosks 74, and/or call-center terminals). The “user interface designer 614 allows management to edit the user interface of the register and self-service applications and also saves the specifications in the database 602” on main server 464. EX1005, [0103]. Main server 464 provides user interface specifications to RMS client applications on terminal devices via RMS proxies. *Id.*, [0094], Fig. 14, [0121]; EX1002, ¶201.

User interfaces of register and self-service applications are accessible at terminal devices, including order terminals 52 (via register application 606), kiosks 74 (via self-service application 618), and call-center terminals (via register application 627). EX1005, Fig. 14. Below is a graphical-user interface for order entry. EX1002, ¶202.



Id., Fig. 3, [0032], [0048]. “[O]rder takers at the front counter 4 use a graphical user interface 100 displayed on the order terminals 52[] to enter orders.” *Id.*, [0062]. Similarly, “telephone order takers at the call center use the same interface 100 ... to enter customer orders.” *Id.*, [0114]; *see also id.*, [0016], Fig. 14. “[C]ustomer kiosks 74 provide an interface 200 on a touch screen” for entering orders. *Id.*, [0075]; *see also id.*, [0074], [0076], Fig. 4, Figs. 8-10; EX1002, ¶202.

Tengler thus discloses POS terminals (e.g., register and self-service applications and/or their user interfaces) generated by POS-builder software (e.g., user-interface designer) configured to be accessible at terminal devices (e.g., order terminals 52, customer self-service kiosks 74, and/or call-center equipment). EX1002, ¶¶201-203.

4. 1[c]

Tengler’s POS terminals (e.g., register and self-service applications and/or their user interfaces) displayed on terminal devices are configured collect corresponding transaction data. For example, Fig. 3 is “a graphical user interface for order entry.”

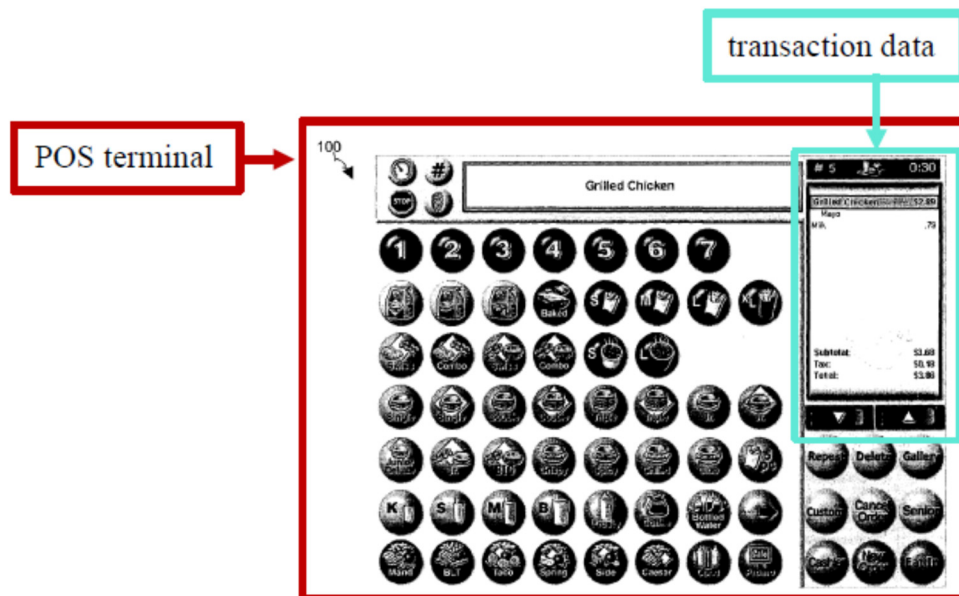


FIG. 3

EX1005, Fig. 3; [0032], [0062], [0114]. Figure 4 is a “graphical user interface for accepting payment for orders and making change.”

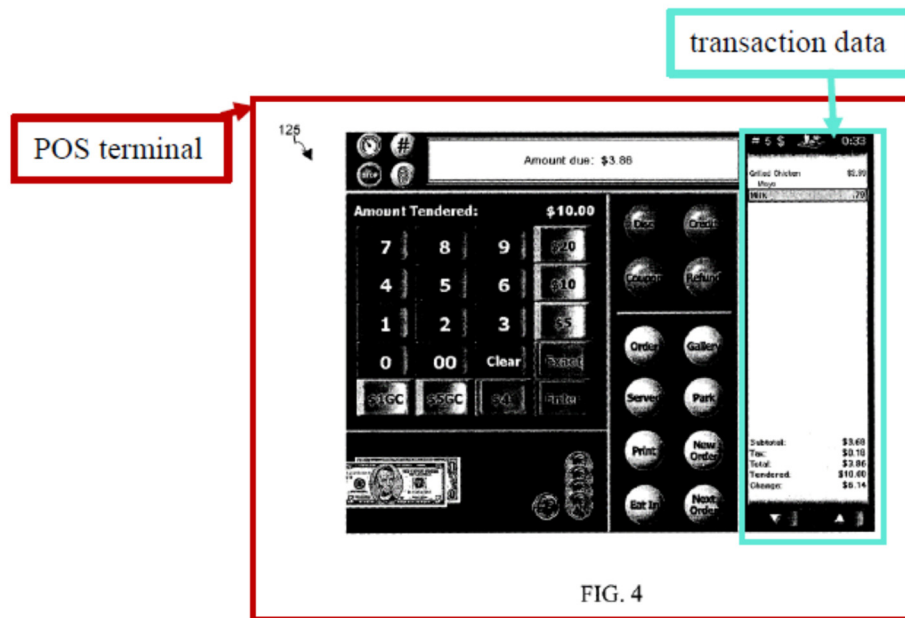


Fig. 4; [0033], [0049], [0055], [0062], [0076], [0088], Figs. 9-10, Claim 5.

EX1002, ¶204.

Order and customer information (i.e., transaction data) is collected at each order terminal. *See id.*, [0018], [0065], [0066] (“*terminals, registers, and workstations that display and receive order information*”), [0090]. Order information is also collected in a store-wide database. *See id.*, [0088] (“shoebox” database 605 and MSDE database 602), [0018]. Thus, Tengler discloses POS terminals configured to accept POS transactions and collect corresponding transaction data. EX1002, ¶¶204-206.

5. 1[d]

Tengler discloses a POS-builder interface (e.g., manager graphical-user interfaces such as 192 and 196) configured to be accessible via network

communication with the web server (e.g., main server 464) over a communications network (e.g., a network comprising the Internet¹⁰). EX1002, ¶207.

As discussed in 1[a], main server 464 includes web server software 620. “Managers access information about the restaurant 2 using the web server 620 and interfaces 192 and 196.” *Id.*, [0109]; *see also id.*, [0073], [0103]; EX1002, ¶208.

¹⁰ References to “a network comprising the Internet” in Ground 3 refer to Tengler’s communications network comprising (a) the Internet, (b) TCP/IP network such as network 462, and/or (c) local area network between server 604 and registers/stations/terminals (EX1005, [0088]). *See* § XIII.A.6 (1[e]); EX1002, ¶207 n.7.

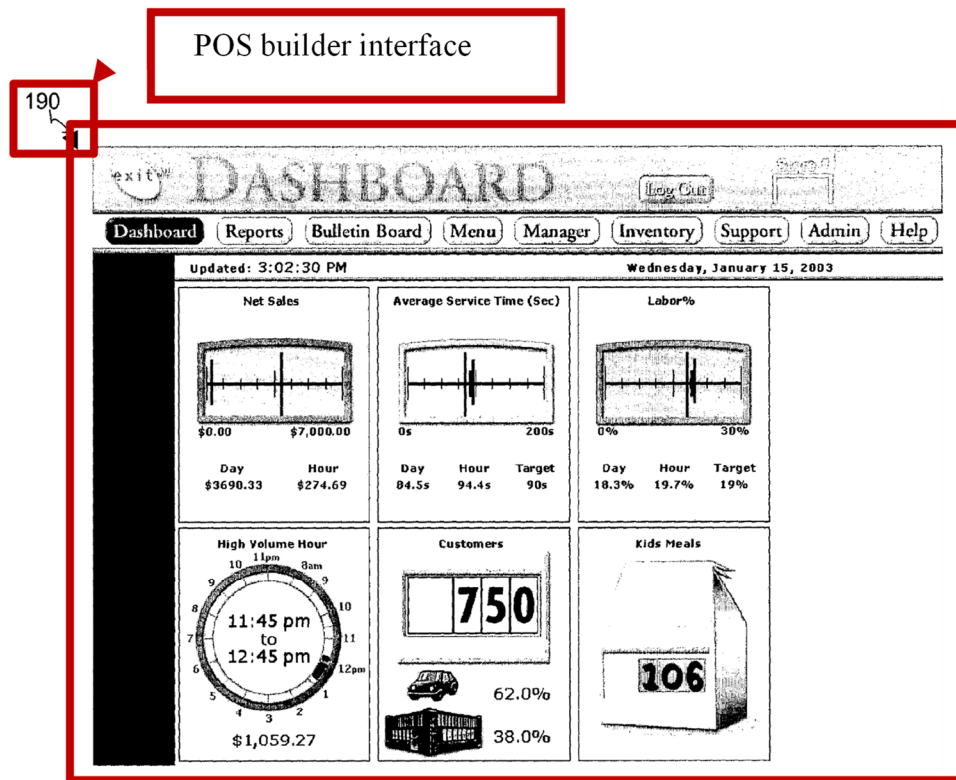
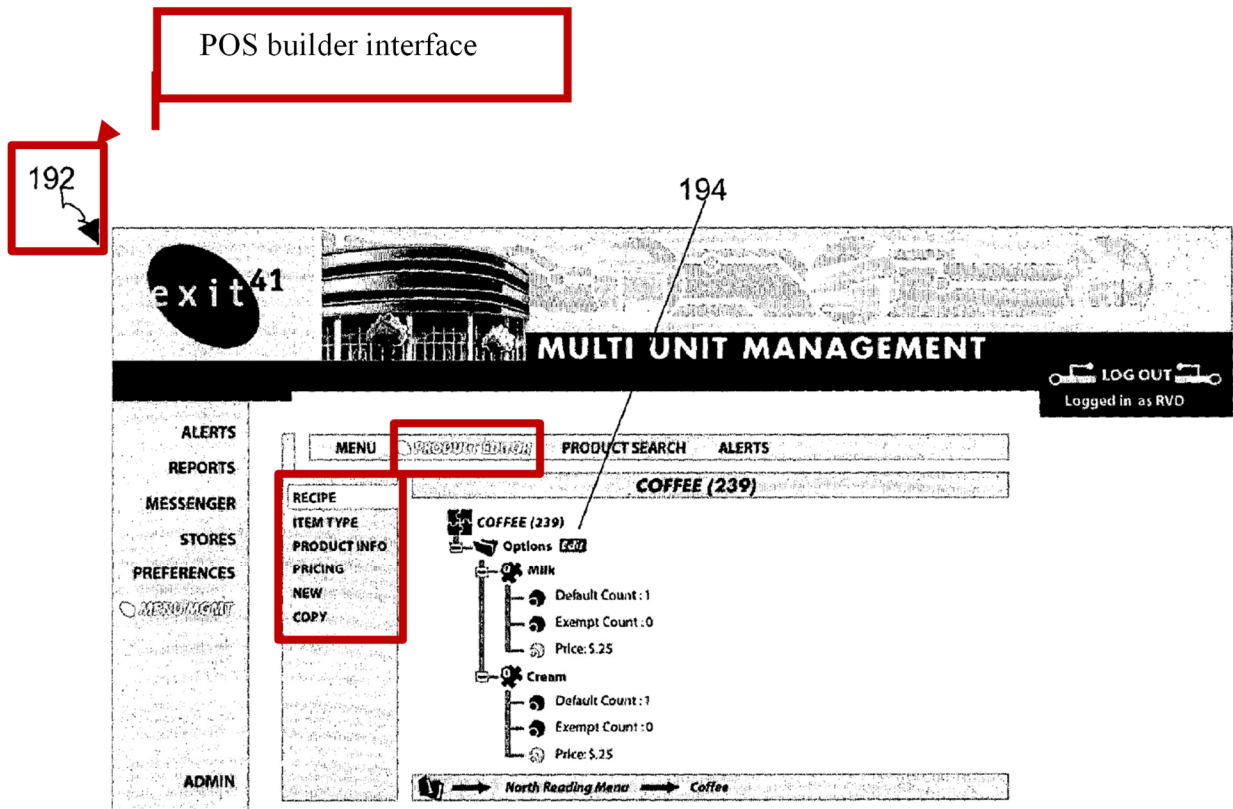


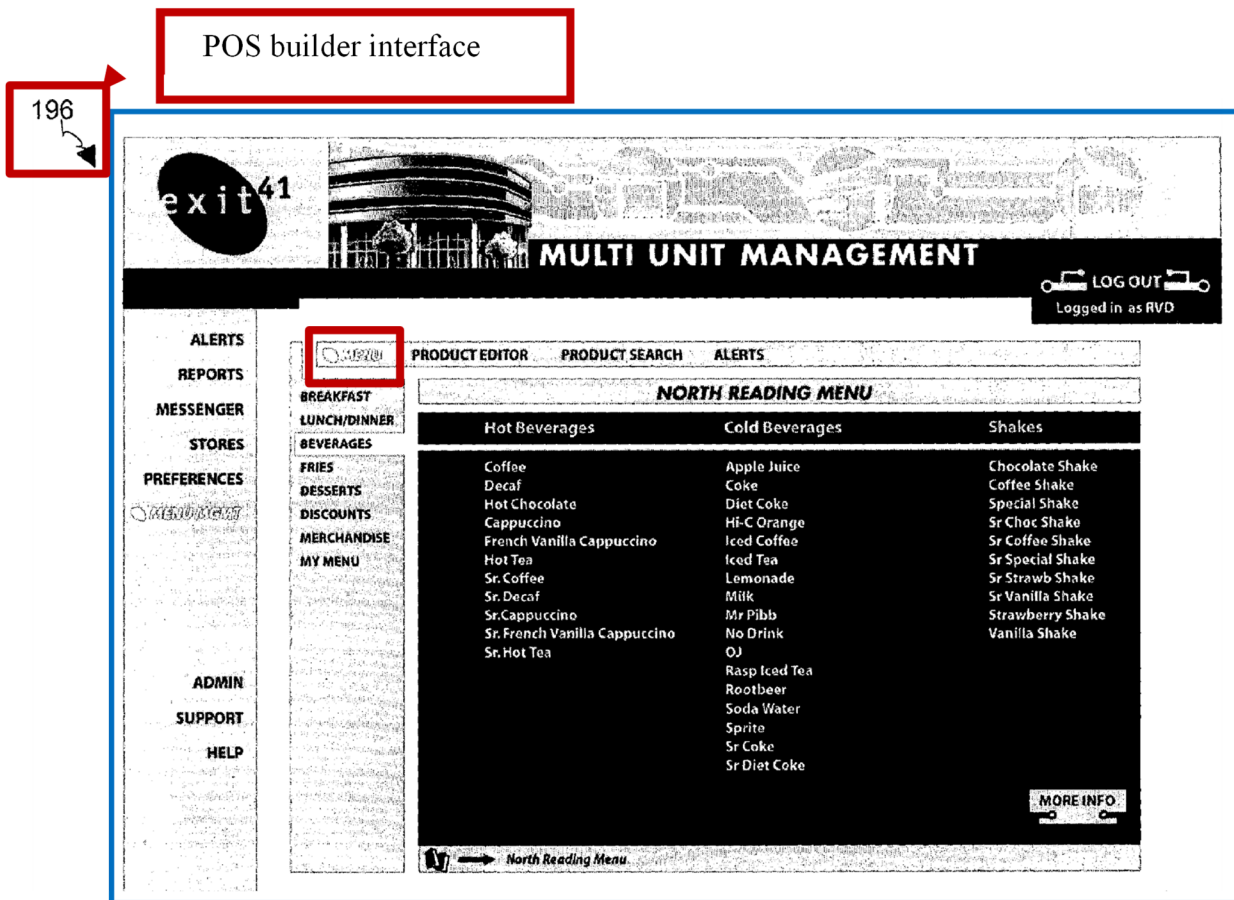
FIG. 7

Id., Fig. 7.

“[M]anagers can also modify menus and change prices using interfaces.” *Id.*, [0073]; *see also id.*, [0103], [0109]. The “product editor” screen of interface 192 lists various attributes of a product, including recipe, item type, product info, pricing, and new. *Id.*, Fig. 7A, [0073]; EX1002, ¶209.



Id., Fig. 7A (excerpted). The “menu” screen of interface 196 allows managers to “modify menus” of a particular restaurant location. *Id.*, [0073], [0108], [0111]; EX1002, ¶209.



Id., Fig. 7B (excerpted).

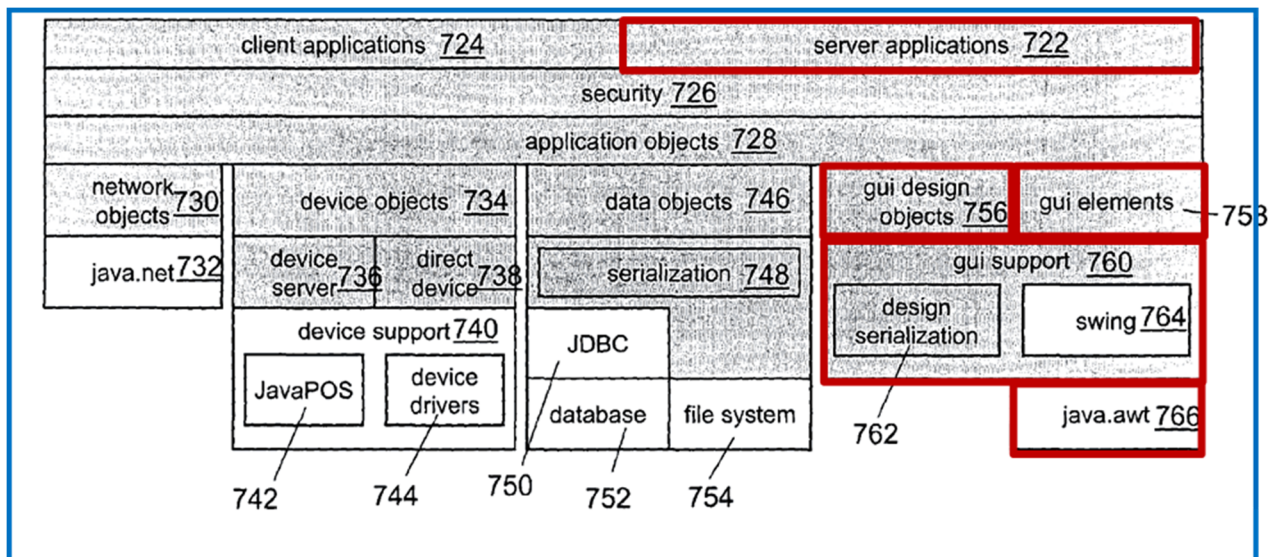
Thus, Tengler discloses and suggests this limitation. EX1002, ¶¶207-210.

6. 1[e]

As discussed in 1[d], POS-builder interfaces (e.g., manager user interfaces) are configured to be accessible via network communication with the web server (e.g., main server 464) over the communications network (e.g., network comprising the Internet). Tengler's manager interfaces are utilized to access user-interface designer (i.e., POS-builder software) for creating or modifying user interfaces of

register and self-service applications. EX1005, [0073], [0103], Figs. 7A-7B; EX1002, ¶211.

Manager graphical user interfaces are utilized to access user interface designer for programmatically creating or modifying user interfaces of self-service applications. For example, Figure 16 “represents the organization of applications and object classes for” RMS 600, “includ[ing] server applications 722 that include RMS server 604.” *Id.*, [0121]; *see also id.*, [0088], Fig. 14; EX1002, ¶212.



Id., Fig. 16. “Graphical User Interface (GUI) design objects 756 implement the logic for user interface designer 614.” *Id.*, [0121]. “GUI elements 758 are a library of elements useful for creating GUIs for client applications 724.” *Id.*; *see also id.*, [0073], [0107], [0109]; § XIII.B (claim 2); EX1002, ¶212.

User interfaces of client applications are created or modified in real time over the network comprising the Internet. As discussed in 1[b], user interface designer

allows managers to edit user interfaces of client applications and save modified specifications to database 602 in real-time via the network. “The interaction between the register applications 606 and other clients with the RMS server 604 is a real-time process.” EX1005, [0094]; *see also id.*, [0056], [0103], [0121], [0127], Fig. 14. POS terminals are thus created or modified in real time over the communications network (e.g., a network comprising the Internet) both when the manager saves modified specifications to database 602 and when clients of RMS server 604 receive and/or display modified user interfaces in real-time. EX1002, ¶213.

A remote “call center order taker’s register 627” is an example of a client application that interacts with RMS server 604 in real-time. *Id.*, [0112]. When a customer calls to order, register 627 contacts “the restaurant’s RMS server 604 (via a remote session established through its RMS proxy 628)” and “display[s] the appropriate user interface, so that the order taker can enter the customer’s order.” *Id.*, [0112]; *see also id.*, [0114]; EX1002, ¶214.

Communication between RMS server 604 and clients (e.g., remote call-center register 627) occurs via a TCP/IP network such as network 462. *Id.*, [0078], [0115], [0136]. A POSITA would have understood TCP/IP communications between RMS server 604 on main server 464 and clients discloses and suggests communicating via the Internet. Tengler thus discloses and suggests TCP/IP network 462 is and utilizes the same communications network as the Internet. EX1002, ¶215.

As discussed in § VIII.A, “communications network” is a group of devices interconnected by communication channels. RMS server 604 is (1) accessible using interfaces 192 and 196 over the Internet (*see* § XIII.A.5), (2) connected to remote call-center register 627 via TCP/IP network such as network 462, and (3) connected to in-store registers/stations/terminals via a local-area network (EX1005, [0088]). EX1002, ¶216.

Because these devices are interconnected by communication channels, they collectively comprise a communications network. Thus, Tengler discloses a “communications network” comprising the Internet, network 462, and/or the in-store LAN. EX1002, ¶217.

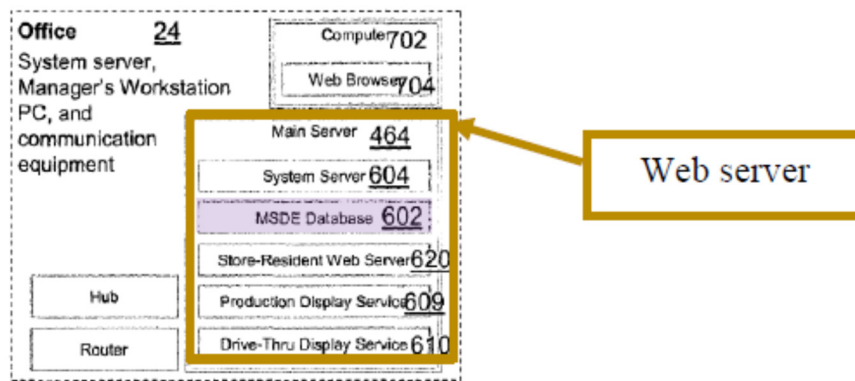
To the extent this element requires a common protocol to be used among interconnected devices, and to the extent Tengler does not disclose the same, a POSITA would have been motivated to use the Internet for Tengler’s server-client communications because the Internet was ubiquitous by February 2008, Tengler’s system includes a web server with Internet access (EX1005, Fig. 2, [0109]), and a POSITA would have been familiar with Internet protocols and implementation of web-based systems. Using the Internet for server-client communications would also reduce POS system/maintenance costs by eliminating an in-store LAN, which is often cost-prohibitive for small-scale and/or mobile merchants. Selection of a communications network was a mere matter of design choice selected from a finite

number of predictable alternatives, such as “a LAN, a WAN, and/or the Internet.” EX1007, [0015]; *see also id.*, EX1008, [0033], [0057]; EX1002, ¶218.

Tengler thus discloses and suggests a POS-builder interface (e.g., manager graphical-user interfaces) configured to be utilized to access POS-builder software (e.g., user-interface designer) for programmatically creating or modifying said one or more POS terminals (e.g., register and self-service applications and/or their user interfaces) in real time over the communications network (e.g., network comprising the Internet). EX1002, ¶¶211-219.

7. 1[f]

As discussed in 1[d] and 1[e], Tengler discloses manager graphical-user interfaces (POS-builder interfaces) utilized to access user-interface designer (POS-builder software) on main server 464 for programmatically creating or modifying graphical-user interfaces of register applications (POS terminals) over the network. As discussed for 1[a], Tengler discloses user-interface designer allows management to edit the user interface of the register and self-service applications and save the specifications in the MSDE database 602, which is part of main server 464 (the web server). EX1005, [0103]; EX1002, ¶220.



Id., Fig. 15 (excerpted).

As discussed in 1[b] and 1[e], Tengler discloses POS terminals (e.g., register and self-service applications and/or their user interfaces) accessible at terminal devices via proxy sessions with RMS server software 604 on main server 464. EX1002, ¶221.

As discussed for 1[e], Tengler discloses and suggests real-time interaction between RMS server 604 (on main server 464) and client applications via a network comprising the Internet. *Id.*, [0094]; EX1002, ¶222.

Tengler discloses and suggests POS-builder software (e.g., user-interface designer) configured to interact with the one or more POS terminals (e.g., register and self-service applications and/or their user interfaces) over the communications network (e.g., a network comprising the Internet) for the POS builder system to perform functions using instructions sent from the POS-builder interface (e.g., instructions to modify the user interface of client applications). EX1002, ¶¶220-223.

8. 1[g]

As discussed in 1[c], Tengler's POS terminals (e.g., register and self-service applications and/or their user interfaces) are configured to accept POS transactions and collect corresponding transaction data. This order information is collected at each order terminal and transmitted to main server 464. *See* EX1005, [0065], [0090]. For example, RMS server 604 "tracks the state of all pending orders at all times and stores this information in a 'shoebox' database 605." *Id.*, [0088], [0095]. MSDE database 602 at main server 464 "maintains a complete history of orders for a long period of time for later analysis and display." *Id.*, [0089]; EX1002, ¶224.

As discussed in 1[e], Tengler discloses and suggests real-time interaction between RMS server 604 (on main server 464) and client applications via a network comprising the Internet. EX1002, ¶225.

Thus, Tengler discloses and suggests said POS transactions and corresponding transaction data from POS terminals (e.g., register and self-service applications and/or their user interfaces) are configured to be transmitted to said web server (e.g., main server 464) over the communications network (e.g., a network comprising the Internet). EX1002, ¶¶224-226.

9. 1[h]

As discussed in 1[c], Tengler's POS terminals (e.g., register and self-service applications and/or their user interfaces) are configured to accept POS transactions and collect corresponding transaction data. EX1002, ¶227.

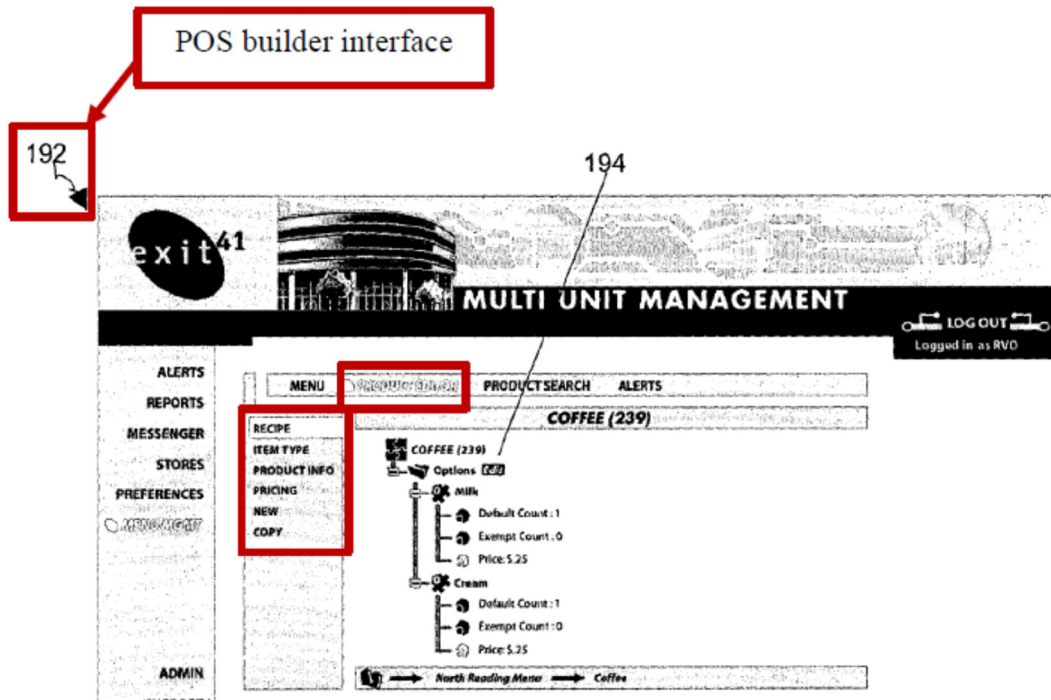
The transaction data is correlated by order (i.e., transaction). Data about each order is collected at each station. EX1005, [0011] (“[E]ach of the stations comprising storage for data about the orders.”), [0055] (Kiosk “enters the [customer] image into the database, linked to the order.”), [0018]. Order information is also collected in a store-wide database. For example, “RMS server 604 ... tracks the state of all pending orders at all times and stores this information In a ‘shoebox’ database 605.” *Id.*, [0089]. MSDE database 602 at main server 464 “maintains a complete history of orders for a long period of time for later analysis and display.” *Id.*; EX1002, ¶228.

Thus, Tengler discloses each POS transaction is correlated with corresponding transaction data at said one or more POS terminals. EX1002, ¶¶227-229.

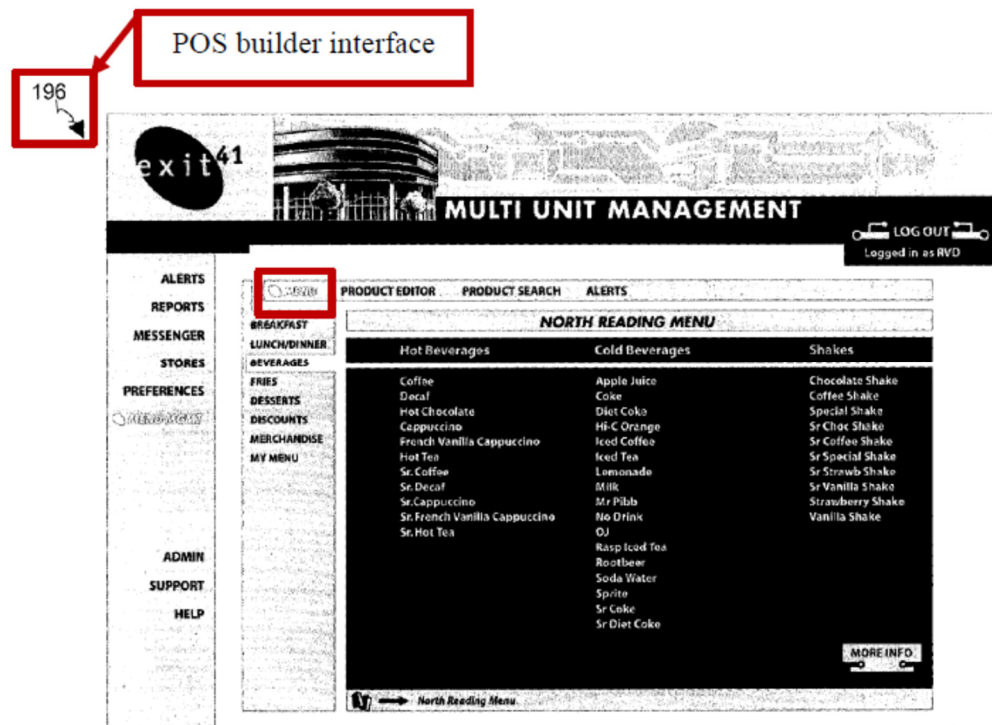
B. Claim 2

As explained in 1[d] and 1[e], Tengler discloses a POS-builder interface (e.g., manager graphical-user interfaces) utilized to access POS-builder software (e.g., user-interface designer) for programmatic creation and modification of POS terminals. Instructions to the POS-builder interface are not formatted in

programming code. For example, managers “modify menus and change prices using interfaces.” EX1005, [0073]; *see also id.*, [0103], [0109].



Id., Fig. 7A (excerpted). The “menu” screen of interface 196 allows managers to “modify menus” using a graphical-user interface. *Id.*, [0073].



Id., Fig. 7B (excerpted); *see also id.*, [0108]. EX1002, ¶230.

Thus, Tengler discloses and suggests each element of this claim. EX1002, ¶231.

C. Claim 3

As explained in 1[a], Tengler discloses POS-builder software (e.g., user-interface designer) that allows a manager to create or modify POS terminals (e.g., register and self-service applications and/or their user interfaces). EX1002, ¶232.

A POSITA would have understood Tengler discloses and suggests iterative testing of POS terminals in real time using the user-interface designer. For example, Tengler discloses “[a] user interface designer 614 allows management to edit the user interface of the register and self-service applications and also saves the

specifications in the [MSDE] database 602.” EX1005, [0103]. A POSITA would have understood reviewing changes to save or discard them discloses and suggests testing POS terminals iteratively and in real time. EX1002, ¶233.

Terminal devices are notified when changes are made to database 602. For example, “[t]he RMS proxy server 608 notifies its host application (e.g., register applications 606) that a change has occurred via an event.” *Id.*, [0094]. Tengler discloses and suggests iterative testing of edits to user interfaces of client applications while terminal devices running unedited client applications are operable to accept POS transactions, with such edits becoming available at such terminal devices when the manager saves them to database 602. EX1002, ¶234.

Thus, Tengler discloses and suggests each element of this claim. EX1002, ¶¶232-235.

D. Claim 4

Tengler discloses terminal devices (e.g., terminals 52, kiosks 74, call-center terminals) running RMS software client applications. EX1005, Figs. 14-16. A POSITA would have understood Tengler discloses no specialized hardware or software is required at terminal devices (e.g., to run register and self-service applications) because none is disclosed in Tengler. EX1002, ¶236.

As discussed in 1[a], Tengler discloses user-interface designer (POS-builder software) is accessible via the Internet using interfaces 192 and 196 (e.g., via web

browser). EX1005, [0109], [0073], [0116], Fig. 15. Tengler does not disclose the need for any specialized hardware or software at a terminal device for a manager to use manager user interfaces (e.g., via web browser). Accordingly, a POSITA would have understood manager interfaces are implemented without specialized hardware or software at a given terminal device. EX1002, ¶237.

To the extent Tengler does not disclose “without specialized hardware or software at a given terminal device” as claimed, a POSITA would have been motivated to use general-purpose hardware and software (as opposed to specialized hardware or software) to reduce system cost, complexity, and maintenance. EX1002, ¶¶236-239.

E. Claim 5

Tengler discloses main server 464 “runs the system server software 604, the database 602, the store-resident web server software 620, the production display service 609, and the drive-through display service 610.” EX1005, [0116]. “The restaurant management software 600 is not limited to any specific operating system.” *Id.*, [0115]; EX1002, ¶240.

Tengler discloses and suggests that no specialized hardware or software is required to implement the web server. To the extent Tengler does not disclose main server 464 comprises “a standard internet web server implemented with standard web server hardware and software,” a POSITA would have been motivated to use

general-purpose hardware and software (as opposed to specialized hardware or software) to reduce the system cost, complexity, and maintenance. EX1002, ¶241.

Tengler discloses and suggests database 602 at main server 464 is a relational database. Specifically, Tengler discloses using SQL to access data (EX1005, [0121]) and SQL is a database access language for relational databases. EX1002, ¶242.

As discussed in 1[a], Tengler discloses and suggests that user-interface designer is installed on main server 464. EX1002, ¶¶240-244.

F. Claim 6

As explained in 1[a], Tengler discloses and suggests POS-builder software (e.g., user-interface designer) installed on said web server (e.g., main server 464). EX1005, [0103]; EX1002, ¶245.

Managers use interfaces 192 and 196 (POS-builder interfaces) to modify menus and change prices. *Id.*, [0073], Figs. 7A-7B. As discussed in 1[e], POS terminals are created or modified in real time over the communications network. Thus, Tengler discloses and suggests POS-builder software that provides instructions to add new POS terminals, e.g., by adding new interfaces (e.g., new menu category or subcategory or new product), by duplicating and/or revising menus for different stores and/or brands, and by providing user-interface specifications for RMS proxy sessions via client devices. EX1002, ¶¶245-247.

G. Claim 7

As discussed for claim 6, Tengler discloses and suggests POS-builder software (e.g., user-interface designer) installed on said web server (e.g., main server 464). Managers use interfaces 192 and 196 (POS-builder interfaces) to modify menus and change prices. EX1005, [0073], Figs. 7A-7B; EX1002, ¶248.

Thus, Tengler discloses and suggests POS-builder software that provides instructions to modify existing POS terminals, e.g., by modifying existing interfaces (e.g., editing menus, products, or categories), editing menus for different stores and/or brands (*see id.*, [0103]), and providing modified user interface specifications for use during RMS proxy sessions by client devices. EX1002, ¶¶248-250.

H. Claim 8

As discussed for 1[a], Tengler discloses user-interface designer at main server 464 is accessible via web access. Office 24 includes computer 702 (also called manager station 70) with web browser 704 that enables managers to “view food production and service activity in the restaurant” and “modify menus and change prices.” EX1005, [0073]; *see also id.*, [0103], Claim 42. Tengler thus discloses and suggests POS terminals (e.g., register and self-service applications and/or their user interfaces) accessible by a web browser. EX1002, ¶251.

To the extent Tengler does not disclose POS terminals accessible by a web browser, a POSITA would have been motivated to provide such functionality to

allow a manager to view the interfaces employees and customers see in-store (i.e., the same look and feel) when editing items and menus via the user-interface designer to ensure accuracy before committing changes to the database. Providing browser access to view user interfaces of software applications (including POS terminals) was known, and a POSITA would have reasonably expected success enabling access to user interfaces of register and self-service applications via web browser. EX1002, ¶252 (citing Woycik).

Accordingly, Tengler discloses and suggests this claim. EX1002, ¶¶251-253.

I. Claim 9

As discussed in 1[e], manager edits to user interfaces of register and self-service applications made with user-interface designer at main server 464 are saved to database 602, then provided to client devices via RMS proxy sessions. “Each of the cashier stations ... has a restaurant management system client application 606 and a database 607” that “ensure that each of the cashier stations ... is capable of running in a standalone mode by operating on stored or cached data if any of the cashier stations become disconnected from network 462.” *Id.*, [0090]; *see also id.*, Claims 5-6, Figs., 11, 14. Tengler thus discloses POS terminals generated by user-interface designer are configured to operate independently of main server 464. EX1002, ¶¶254-255.

J. Claim 10

As discussed for 1[a], Tengler discloses user-interface designer (POS-builder software) “allows management to edit the user interface of the register and self-service applications and also saves the specifications in the database 602.” EX1005, [0103], [0073]. As discussed for 1[d] and 1[e], manager interfaces such as 192 and 196 (POS-builder interfaces) are utilized to access user-interface designer (POS-builder software) to create or modify user interfaces of register and self-service applications (POS terminals). EX1002, ¶256.

Tengler discloses user interfaces of register and self-service applications comprise various numbers, shapes, and arrangements of selection keys and buttons. EX1005, Figs. 3-4, 9-10; EX1002, ¶257.

125
↙



FIG. 4

220
↙



FIG. 9

Id., Figs. 4, 9.

A POSITA would have understood that “modify[ing] menus and chang[ing] prices” (EX1005, [0073]) discloses and suggests creating and/or altering user interface content, design, and navigation elements via manager interfaces, including specifying and displaying the number, shape and arrangement of keys or buttons as these were and remain common attributes of POS terminal interfaces. EX1002, ¶258 (citing Woycik, Tengler, Jacobs, McNally, Wagner, Eisenhart, and Cusack).

Alternatively, a POSITA would have been motivated to allow managers to specify the number, shape, and arrangement of keys or buttons appearing on Tengler's client application interfaces to improve customization, aesthetics, and functionality of POS terminal displays. EX1002, ¶¶259-260.

A POSITA would have had a reasonable expectation of success providing user interface designer with the capability to specify the number, shape and arrangement of keys or buttons because these specifications can be implemented with known techniques. EX1002, ¶¶256-262.

K. Claim 11

As explained for Claim 10, Tengler discloses and suggests allowing specification of a number, shape, and arrangement of keys or buttons via manager interfaces to improve customization, aesthetics, and functionality of POS terminal displays, and these same considerations would have motivated a POSITA to enable the manager to associate items with the keys or buttons via manager interfaces. Tengler discloses items associated with keys or buttons at user interfaces of register and self-service applications, which are already created and edited using the user-interface designer. *See* EX1005, Figs. 3, 9; EX1002, ¶263.

Associating items with buttons or keys of POS terminals was known in the art. EX1002, ¶¶264-265 (citing Woycik, Cusack, Jacobs, McNally, Wagner, and Tengler).

L. Claim 12

As discussed for Claim 11, Tengler discloses and suggests manager interfaces (POS-builder interfaces) allow items to be associated with keys or buttons of user interfaces for register and self-service applications. Tengler also discloses attributing attributes to items from manager interfaces, including via the “Product Editor” tab of interface 192. EX1005, Fig. 7A (listing various editable attributes of a product, including recipe, item type, product info, and pricing), [0073]; EX1002, ¶¶266-267.

M. Claim 13

As discussed for 1[a], Tengler discloses “user interface designer 614 allows management to edit the user interface of the register and self-service applications and also saves the specifications in the [MSDE] database 602.” EX1005, [0103]; *see also id.*, [0116], Fig. 15. Thus, the self-service applications and specifications with item attributes are stored, retrievable, and changeable from a database stored on main server 464. *Id.*, [0073]. EX1002, ¶¶268-270.

N. Claims 14-20

Claims 14-20 recite similar limitations as Claims 1-13 and are obvious for the same reasons. EX1002, ¶271.

Claim	Corresponding Section
14[pre]	§§ XIII.A.1, XIII.A.2 (1[pre], 1[a]).
14[a]	§§ XIII.A.3, XIII.A.8 (1[b],1[g]).

Claim	Corresponding Section
14[b]	§ XIII.A.4 (1[c]).
14[c]	§§ XIII.A.5, XIII.A.6 (1[d], 1[e]).
14[d]	§ XIII.A.7 (1[f]).
14[e]	§ XIII.A.8 (1[g]).
14[f]	§ XIII.A.9 (1[h]).
15	§ XIII.C (claim 3).
16	§ XIII.H (claim 8).
17	§ XIII.I (claim 9).
18	§ XIII.J (claim 10).
19	§ XIII.K (claim 11).
20	§§ XIII.L, XIII.M (claims 12,13).

XIV. CONCLUSION

Petitioner respectfully requests institution of IPR and cancellation of all challenged claims.

Respectfully submitted,

Dated: December 1, 2022

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APPENDIX A

Claim	Limitation
1	1 [pre] A web-based point of sale (POS) builder system comprising: 1[a] a web server including POS builder software installed thereon; 1[b] one or more POS terminals generated by said POS builder software and said one or more POS terminals configured to be accessible at one or more terminal devices, 1[c] said POS terminals configured to accept POS transactions and collect corresponding transaction data; and 1[d] a POS builder interface configured to be accessible via network communication with said web server over a communications network; 1[e] wherein said POS builder interface is configured to be utilized to access said POS builder software for programmatically creating or modifying said one or more POS terminals in real time over the communications network, 1[f] wherein said POS builder software is configured to interact with said one or more POS terminals over the communications network in

	order for the web-based point of sale (POS) builder system to perform functions in accordance with instructions sent from the POS builder interface; 1[g] wherein said POS transactions and corresponding transaction data from said one or more POS terminals are configured to be transmitted to said web server via the communications network; and 1[h] wherein each POS transaction is correlated with corresponding transaction data occurring at said one or more POS terminals.
2	The web-based point of sale (POS) builder system of claim 1, wherein instructions to the POS builder interface for programmatic creation and modification of the one or more POS terminals are not formatted in programming code.
3	The web-based point of sale (POS) builder system of claim 1, wherein said one or more POS terminals are tested iteratively in real time while said one or more POS terminals are operable to accept POS transactions.
4	The web-based point of sale (POS) builder system of claim 1, wherein at least one of said POS builder interface and said one or more POS

	terminals are configured to be implemented without specialized hardware or software at a given terminal device.
5	The web-based point of sale (POS) builder system of claim 1, wherein said web server includes a standard internet web server implemented with standard web server hardware and software, using one or more relational databases, wherein software for said POS builder interface resides in and is executed from said web server.
6	The web-based point of sale (POS) builder system of claim 1, wherein said POS builder software is configured to provide instructions to add new POS terminals.
7	The web-based point of sale (POS) builder system of claim 1, wherein said POS builder software is configured to provide instructions to modify existing POS terminals.
8	The web-based point of sale (POS) builder system of claim 1, wherein said one or more POS terminals are configured to be accessible by a web browser.

9	The web-based point of sale (POS) builder system of claim 1, wherein said one or more POS terminals, once generated, are configured to operate independently of said web server.
10	The web-based point of sale (POS) builder system of claim 1, wherein a number, shape and arrangement of selection keys or buttons for said one or more POS terminals are specified from the POS builder interface.
11	The web-based point of sale (POS) builder system of claim 10, wherein items are associated with said selection keys or buttons from the POS builder interface.
12	The web-based point of sale (POS) builder system of claim 11, wherein attributes are attributed to said items from the POS builder interface.
13	The web-based point of sale (POS) builder system of claim 12, wherein said attributes are stored, retrievable and changeable from a database stored on said web server.
14	14[pre] A method of implementing a web-based point of sale (POS) builder system, said web-based point of sale (POS) builder system

	comprising a network-accessible web server including POS builder software installed thereon, the method comprising: 14[a] providing access to said network-accessible web server by one or more POS terminals, said one or more POS terminals generated from instructions communicated from said POS builder software to respective one or more terminal devices; 14[b] accepting POS transactions via said one or more POS terminals; collecting transaction data corresponding to transactions occurring at said one or more POS terminals; and 14[c] providing further access to said network-accessible web server by a POS builder interface via a communications network, said POS builder software configured to programmatically create or modify said one or more POS terminals in real time over the communications network; 14[d] wherein said POS builder software interacts with said one or more POS terminals over said communications network in order for the web-based point of sale (POS) builder system to perform functions in accordance with instructions sent from the POS builder interface;
--	--

	14[e] wherein said POS transactions and corresponding transaction data from said one or more POS terminals are transmitted to said network-accessible web server via a network connection; and 14[f] wherein each POS transaction is correlated with corresponding transaction data occurring at said one or more POS terminals.
15	The method of providing a web-based point of sale (POS) builder system of claim 14, wherein the method further comprises testing of said one or more POS terminals iteratively in real time while said one or more POS terminals are operable to accept POS transactions.
16	The method of claim 14, wherein said one or more POS terminals are accessible by a web browser.
17	The method of claim 14, wherein said one or more POS terminals, once generated, are operable independently of said network-accessible web server.
18	The method of claim 14, wherein a number, shape and arrangement of selection keys or buttons for said one or more POS terminals are specified from the POS builder interface.

19	The method of claim 18, wherein items are associated with said selection keys or buttons from the POS builder interface.
20	The method of claim 19, wherein attributes are attributed to said items, said attributes stored, retrievable and changeable from a back office database stored on said network-accessible web server.

Table of Exhibits

Exhibit	Description
1001	U.S. Patent No. 10,083,012 to Baratta et al. (“the ’012 patent”)
1002	Expert Declaration of Todd Mowry
1003	Prosecution History of the ’012 patent
1004	U.S. Patent Publication No. 2007/0265935 (“Woycik”)
1005	U.S. Patent Publication No. 2005/0049921 (“Tengler”)
1006	U.S. Patent Publication No. 2008/0208696 (“Olson”)
1007	U.S. Patent Publication No. 2004/0181454 (“Manno”)
1008	U.S. Patent Publication No. 2006/0235755 (“Mueller”)
1009	U.S. Patent Publication No. 2004/0128199 (“Cusack”)
1010	United Kingdom Patent Application GB2369201 (“Tomlinson”)
1011	U.S. Pat. No. 5,818,428 (“Eisenbrandt”)
1012	Plaintiff’s Response in Opposition to Defendant’s Motion for Summary Judgment, <i>CloudfChange, LLC v. NCR Corporation</i> , 6-19-cv-00513 (W.D. Tex.)
1013	Trial Transcript Vol. 1, <i>CloudfChange, LLC v. NCR Corporation</i> , 6-19- cv-00513 (W.D. Tex.)
1014	Plaintiff’s Motion in <i>Limine</i> , <i>CloudfChange, LLC v. NCR Corporation</i> , 6-19-cv-00513 (W.D. Tex.)
1015	United States Patent and Trademark Office Patent Assignment History
1016	Patent Assignment

Exhibit	Description
1017	Plaintiff's Preliminary Infringement Contentions Exhibit A2, <i>CloudofChange, LLC v. Lightspeed POS Inc.</i> , 6-21-cv-01102 (W.D. Tex.)
1018	Scheduling Order, <i>CloudofChange, LLC v. Lightspeed POS Inc.</i> , 6-21-cv-01102 (W.D. Tex.)
1019	U.S. Patent Publication No. 2002/0194074 ("Jacobs")
1020	U.S. Patent No. 7,051,091 ("Cohen")
1021	U.S. Patent No. 6,384,850 ("McNally")
1022	U.S. Patent No. 6,002,395 ("Wagner")
1023	U.S. Patent Publication No. 2007/0175992 ("Brown")
1024	Final Claim Constructions of the Court, <i>CloudofChange, LLC v. NCR Corporation</i> , 6-19-cv-00513 (W.D. Tex.)
1025	Supplemental Claim Construction Order, <i>CloudofChange, LLC v. NCR Corporation</i> , 6-19-cv-00513 (W.D. Tex.)
1026	U.S. Patent No. 6,247,032 ("Bernardo")
1027	U.S. Patent No. 9,400,640 ("the '640 patent")
1028	Microsoft Computer Dictionary (Microsoft Press 5th Ed. 2002)
1029	IEEE Dictionary (IEEE 3rd Ed. 1984)
1030	Random House Computer and Internet Dictionary (Random House 3rd Ed. 1999)
1031	H. Seth, Microsoft .NET – Kick Start (Sams Pub. 2004)
1032	R. Cattell et al., J2EE Technology in Practice (Addison-Wesley 2001)
1033	J. Allaire, Macromedia Flash MX: A Next-Generation Rich Client (Macromedia Mar. 2002)

Exhibit	Description
1034	Final Claim Constructions of the Court, <i>CloudofChange, LLC v. Lightspeed POS Inc.</i> , 6-21-cv-01102 (W.D. Tex., Sep. 16, 2022)
1035	Plaintiff's Preliminary Infringement Contentions for the '012 patent, <i>CloudofChange, LLC v. Clover Network, Inc.</i> , 6-22-cv-00634 (W.D. Tex.)
1036	Scheduling Order, <i>CloudofChange, LLC v. Clover Network, Inc.</i> , 6-22-cv-00634 (W.D. Tex., Oct. 24, 2022)

CERTIFICATE OF SERVICE

I certify that on December 1, 2022, I caused a copy of the following:

Petition for *Inter Partes* Review of U.S. Patent No. 10,083,012
Petitioner's List of Exhibits
Clover Network, LLC Power of Attorney
Fee Authorization
Exhibits [1001-1036]
Word Count Certificate of Compliance

to be served via Express Mail upon Agent of Record for the '012 patent at the following address:

KNOBBE MARTENS OLSON & BEAR LLP
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WORD COUNT CERTIFICATE OF COMPLIANCE

I certify that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,083,012 contains 13,993 words as measured by the word processing software used to prepare the document, in compliance with 37 C.F.R. § 42.24(d).

Respectfully submitted,

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