UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

BIRD BUDDY, INC.,

Petitioner

v.

WOODSTREAM CORPORATION

Patent Owner

IPR2026-00141

Patent US11,627,242

PETITION FOR *INTER PARTES* REVIEW

TABLE OF CONTENTS

LIST OF EXHIBITS

Exhibit Number	Exhibit	Short Name for Exhibit
1001	Declaration of William W. Clark	Expert Declaration
1002	C.V. of William W. Clark	
1003	U.S. Pat. No. 11,627,242	'242 Patent
1004	U.S. Pat. No. 11,627,242 Prosecution History	Prosecution History
1005	U.S. Pat. Pub. 2016/0106072	Bennett
1006	U.S. Pat. Pub. 2012/0048203	Bonham
1007	U.S. Pat. Pub. 2007/0295277	Kin
1008	U.S. Pat. No. 8,683,947	Humphries
1009	U.S. Pat. Pub. 2009/0006677	Rofougaran
1010	Declaration of Mina Ching	Raspberry Pi 2 Model B/Bevan
1011	*Intentionally Left Blank*	
1012	U.S. Pat. Pub. No. 2014/0355446	Altman
1013	U.S. Pat. Pub. No. 2016/0156989	Lovett
1014	Raspberry Pi Mechatronics Projects	Yamanoor
1015	Programming Your Home: Automate with Arduino, Android, and Your Computer	Riley
1016	*Intentionally Left Blank*	
1017	U.S. Pat. No. 1,592,493	Kelly
1018	U.S. Pat. No. 7,111,582	Rich
1019	U.S. Pat. Pub. No. 2015/0373945	Sung
1020	U.S. Design Pat. No. D426,352	Zernov
1021	Farm Show Magazine, Vol. 24, No. 2	FSM or Farm Show Magazine

TABLE OF AUTHORITIES

LISTING OF CLAIMS

Claim	Claim Language
1(pre)	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising:
1(a)	a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising:
1(b)	a. a feeder housing;
1(c)	b. a feeder bottom;
1(d)	c. a feed port disposed on the feeder bottom;
1(e)	d. the camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds;
1(f)	e. the computer located within the feeder housing;
1(g)	f. an internal power source; and
1(h)	g. a WiFi adapter located within the feeder housing.
2	The self-contained bird feeder of claim 1 wherein the WiFi adapter is a WiFi dongle.
3	The self-contained bird feeder of claim 1 further comprising a feed compartment disposed in the feeder housing and a feed compartment separator disposed in the feed compartment, whereby feed is fed by gravity from the feed compartment through the feeder housing, to the feeder bottom, and then to the feed port.
4	The self-contained bird feeder of claim 1 wherein the computer comprises: a processor; a display connector; a multi-media interface; an audio/video jack; and an ethernet socket.
5	The self-contained bird feeder of claim 1 wherein the computer comprises a micro USB socket and a USB port.

6	The self-contained bird feeder of claim 4 wherein the multi-media interface comprises an HDMI port.

MANDATORY ELEMENTS

I. Mandatory Notices

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

Petitioner, Bird Buddy, Inc., is the real-party-in-interest.

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

Petitioner identifies the following matters that would affect, or be affected by, a decision in this proceeding:

- *Woodstream Corp. et al v. Bird Buddy, Inc.*, C.A. No. 1:24-cv-1236-JLH (D. Del.)

C. Lead and Back-up Counsel (37 C.F.R. § 42.8(b)(3))

Petitioner identifies the following lead and back-up counsel:

Lead Counsel	Backup Counsel
Craig R. Smith Reg. No. 45,113 Lando & Anastasi LLP 60 State Street, Ste. 23 Boston, MA 02109 csmith@lalaw.com 617-395-7081	Kevin M. Eckert Reg. No. 80,096 Lando & Anastasi LLP 60 State Street, Ste. 23 Boston, MA 02109 keckert@lalaw.com 617-395-7011

Pursuant to 37 C.F.R. § 42.10(b), petitioner also concurrently files herewith a power of attorney.

D. Service Information (37 C.F.R. § 42.8(b)(4))

Petitioner consents to and requests electronic service via the email addresses for counsel identified above, and identifies the following additional information for service:

litigation@lalaw.com	Isabel Duncan iduncan@lalaw.com

II. Word Count Certification

Petitioner certifies that this Petition complies with the type-volume limitations set forth in 37 C.F.R. § 42.24(a)(1)(i). This Petition contains 13,866 words, according to the word count function of Microsoft Word.

III. Fees

The fees set forth in 37 C.F.R. § 42.15(a) have been submitted with this Petition. Any additional fees are authorized to be charged to Deposit Account No. 502762.

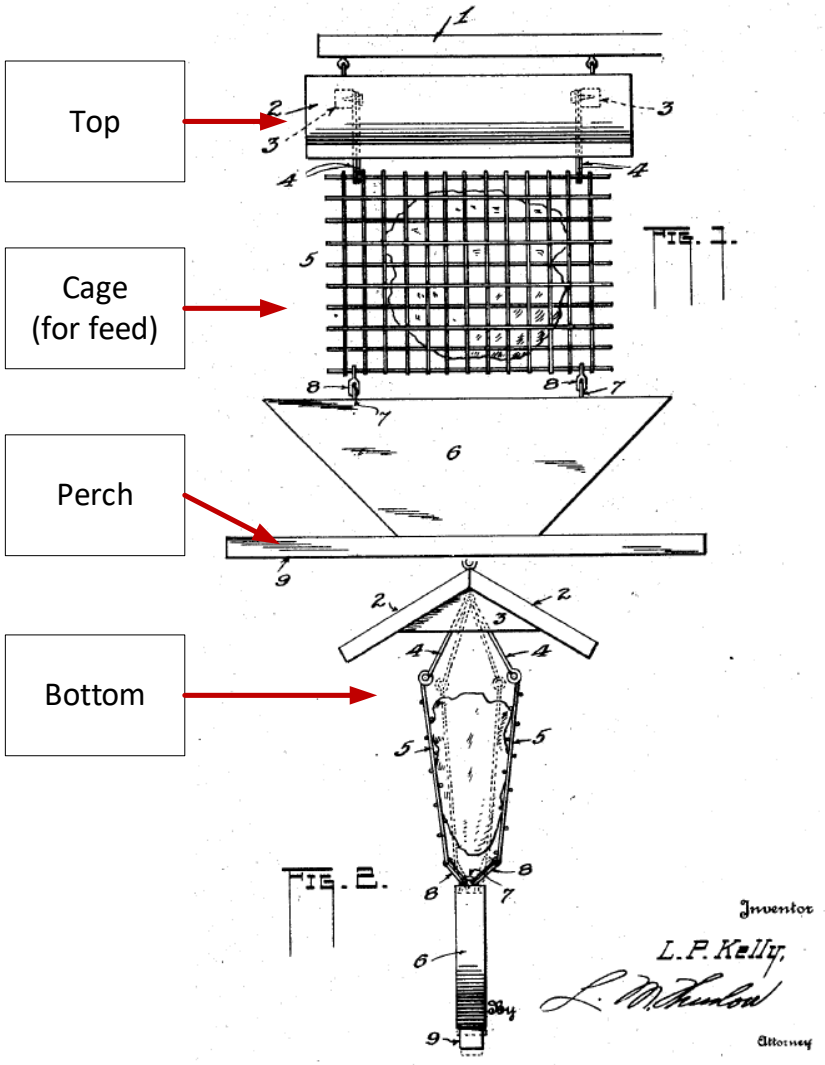
ARGUMENT

I. Introduction

The ‘242 Patent is not novel, and its claims would have been obvious to one of ordinary skill in the art. The ‘242 Patent, which issued on April 11, 2023, covers a bird feeder with a camera and standard electronic components integrated into it. The integration of a camera and electronic components into bird feeders has been known for decades, and the underlying concepts of using cameras or wireless telecommunications to transmit images of birds from a bird feeder, were well-known.

Unfortunately, the ‘242 Patent was permitted to issue, in large part due to Examiner error. The Examiner failed to appreciate that the prior art (including Bennett) disclosed all the elements of the claims of the ‘242 Patent. Instead, the Examiner relied on Bennett for the narrow purpose of addressing a dependent claim. The Examiner’s failure to fully consider Bennett was clear error.

Bird feeders of all shapes and sizes have existed for over a century. For example, Lewis Kelly patented a simple, though familiar bird feeder design in 1925. (EX1001 ¶ 21; EX1017 at col. 2:77-107). His design was for a hanging bird feeder that is similar to many modern bird feeders. It includes a cage for food, a perch, a top and a bottom.



(EX1017 at FIG. 1).

Since the 1920s, bird feeder design has evolved, but certain things are not new. It has been known to use silo-style bird feeders. (EX1001 ¶¶ 22-25). It has been known to incorporate feeding ports into bird feeders. (*Id.*; EX1008 at FIGS. 16-17; EX. 1018 at FIG. 1). It has also been known to use cameras and other devices, incorporated into the bird feeders, to observe and record birds. (EX1001 ¶¶ 28-36; EX1020 at FIG. 1; EX. 1021 at pg. 32). Wireless networks have long

been used to transmit video and still images of birds at bird feeders, using WiFi and other standards. *(Id.).*

The ‘242 Patent discloses a standard, silo-type bird feeder with a camera.

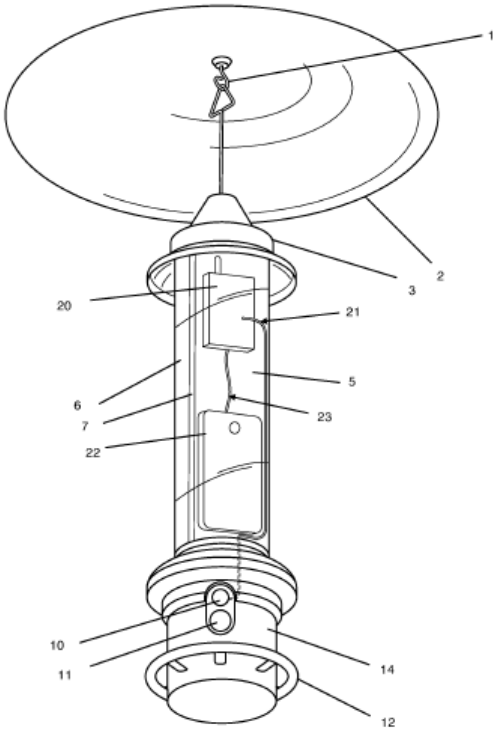


FIG. 1

Although the patent states that it “employ[s] a novel design offering a streaming video from a self-contained feeding platform…” (EX1003 at col. 1:31-36), the ‘242 Patent recites only conventional elements that were well-known to POSITA long before the filing date of the ‘242 Patent. (EX1001 ¶¶ 59-71).

The ‘242 Patent discloses that standard silo-type bird feeders were well-known in the art. Specifically, the ‘242 Patent discloses using a Squirrel Buster Plus Bird Feeder from Brome Bird Care to create the alleged invention by

modifying the Squirrel Buster. (EX1003 at col. 4:21-43). The Squirrel Buster was a silo-type bird feeder. (*Id*.). Silo-type bird feeders were, and are, commonplace.

As another example, Humphries discloses a silo-type feeder with feed ports in the feeder bottom. (EX1008 at FIGS. 20-23, col. 9:50-67).

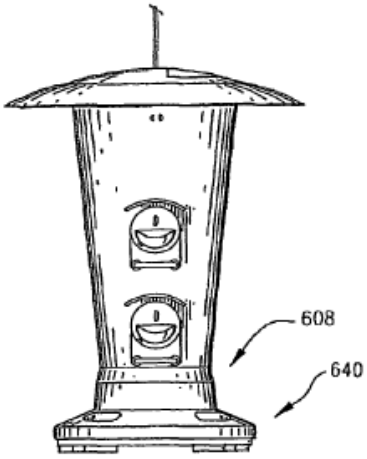


Fig.20

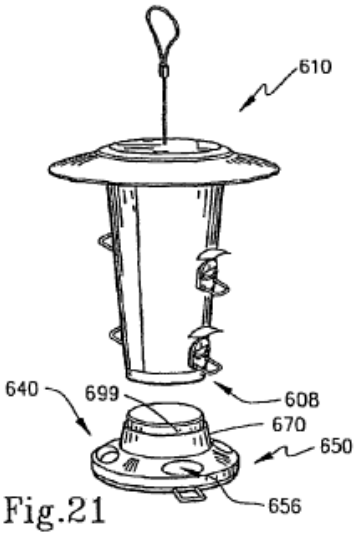


Fig.21

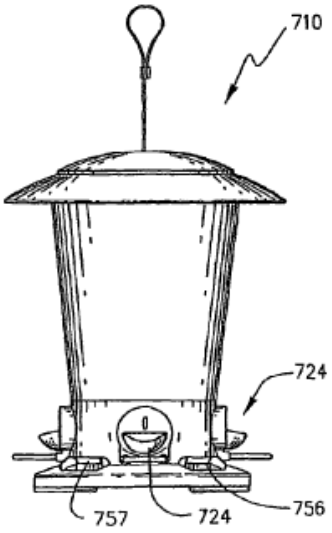


Fig.22

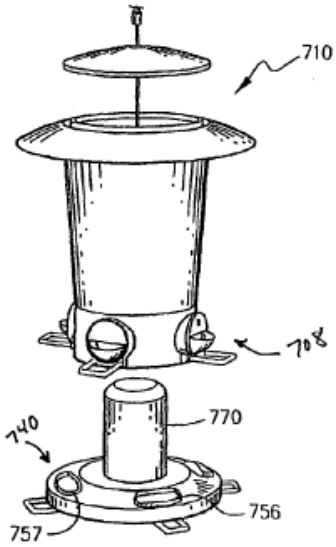


Fig.23

The ‘242 Patent is directed to a simple bird feeder integrated with conventional electronic components. The electronic components include a camera,

a computer, a WiFi adapter, and an internal power source. None of this is new, and the combination of these elements was old and well-known well before the filing date of the '242 Patent. (EX1001 ¶¶ 59-71).

For instance, the Bird-vu bird feeder is a nearly 25-year-old bird feeder that includes a camera. The Bird-vu was featured in Farm Show Magazine in 2000 as a product that bird watchers could purchase so that they could watch, on television, birds eating at the Bird-vu from the comfort of their homes. (EX1001 ¶¶ 28-30; EX1021 at pg. 32). To make it possible to view birds at a remote location via television, the Bird-vu included a built-in camera, located inside its housing, and a wireless transmitter that could transmit to a wireless receiver. (EX1001 ¶¶ 28-30; EX1021 at pg. 32). The receiver would receive the signal and relay it to the television. (EX1001 ¶¶ 28-30; EX1021 at pg. 32). The camera was aligned with the feeding area. (EX1001 ¶¶ 28-30; EX1020 at FIG. 1; EX1021 at pg. 32). In fact, the camera was aligned directly above the feed port that provided food to the tray of the Bird-vu, and could capture activity anywhere on the tray. (EX1001 ¶¶ 28-30; EX1020 at FIG. 1; EX1021 at pg. 32). The Bird-vu antedates the '242 Patent by over a decade, and already disclosed the features of the '242 Patent.

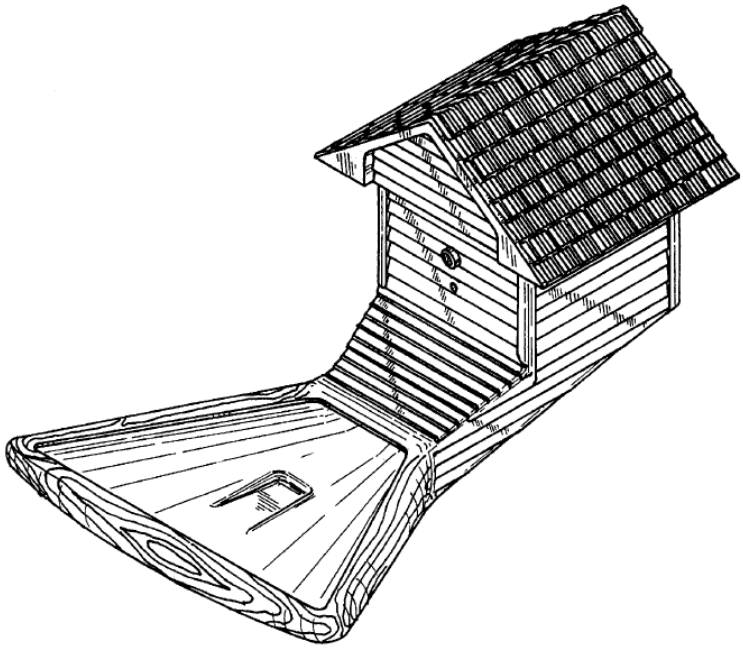


FIG. 1

(EX1020 at FIG. 1).

Bird feeders with conventional electronics, including computers, cameras, and internet connectivity, were known prior to the filing of the '242 Patent. For example, Bennett disclosed a bird feeder with built-in camera and wireless capabilities. (EX1001 ¶ 32; EX1005 ¶¶ 8, 49, 51). The Bennett bird feeder included cameras (facing feeding ports located in the lower surface of the bird feeder), a wireless antenna capable of transmitting using WiFi, a computer controller that managed the hardware, and internal batteries. (EX1001 ¶ 32; EX1005 ¶¶ 8, 49, 51, 58). As a result, Bennett provided a self-contained bird-feeder that could provide detailed images over a wireless network.

Bird-vu and Bennett are just two examples that illustrate the use of common electronics with bird-feeders.

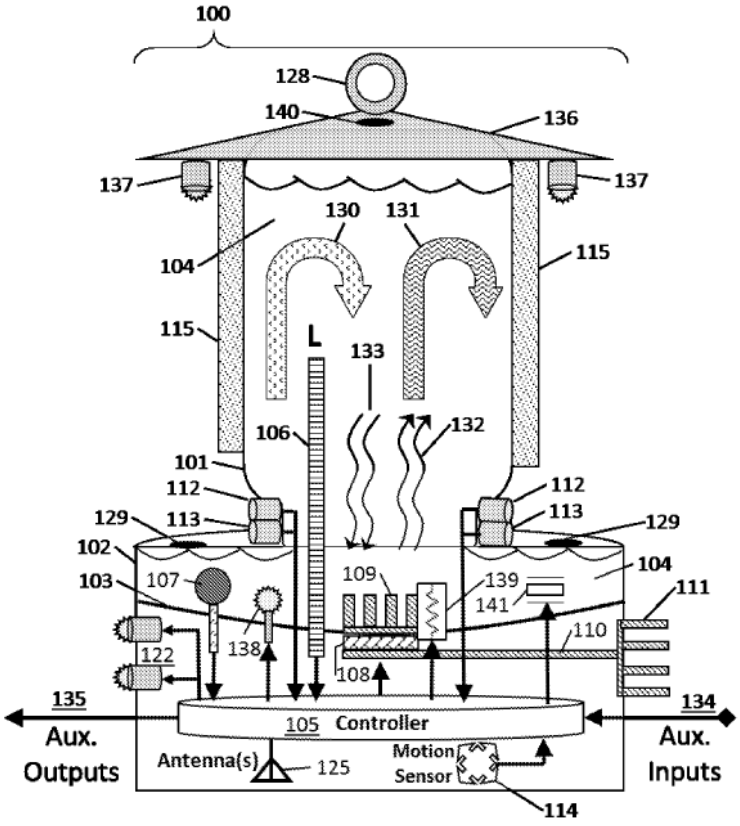


FIG. 1A

(EX1005 at FIG. 1A).

It is not inventive to take common electronics and integrate them into a bird feeder. (EX1001 ¶¶ 59-71). There is nothing new to what the '242 Patent claims. Instead, the '242 Patent is merely an amalgamation of common elements and straightforward, well-known ideas, put together in ways that were already known. (*Id.*).

As a result, and as explained more thoroughly in the grounds below, the claims of the ‘242 Patent should be invalidated.

II. Patent and Prosecution History

A. Description of the Patent

The ‘242 Patent discloses a bird feeder with a camera. The feeder is a silo-style, with a cylindrical feed compartment (5/6) and feed port (11). (EX1003 at FIG. 1, col. 2:15-25, col. 2:38-47). A camera (10) is located directly above the feed port, so that when a bird is eating, it can be seen by the camera. (EX1003 at FIG. 1, col. 2:38-47, 58-67). A perch (12) permits birds to land near the feed port and to access the feed port. (*Id.*).

Internally, a computer (20) manages video capture and transmits (via WiFi) images to other devices. (EX1003 at col. 3:55-62). An internal battery (22) provides power to the electronic components (including the camera and computer). (EX1003 at col. 4:11-15). A feed compartment separator (7) separates the feed compartment into two parts, with food in one part and the electronics in the other part. (EX1003 at col. 3:5-14).

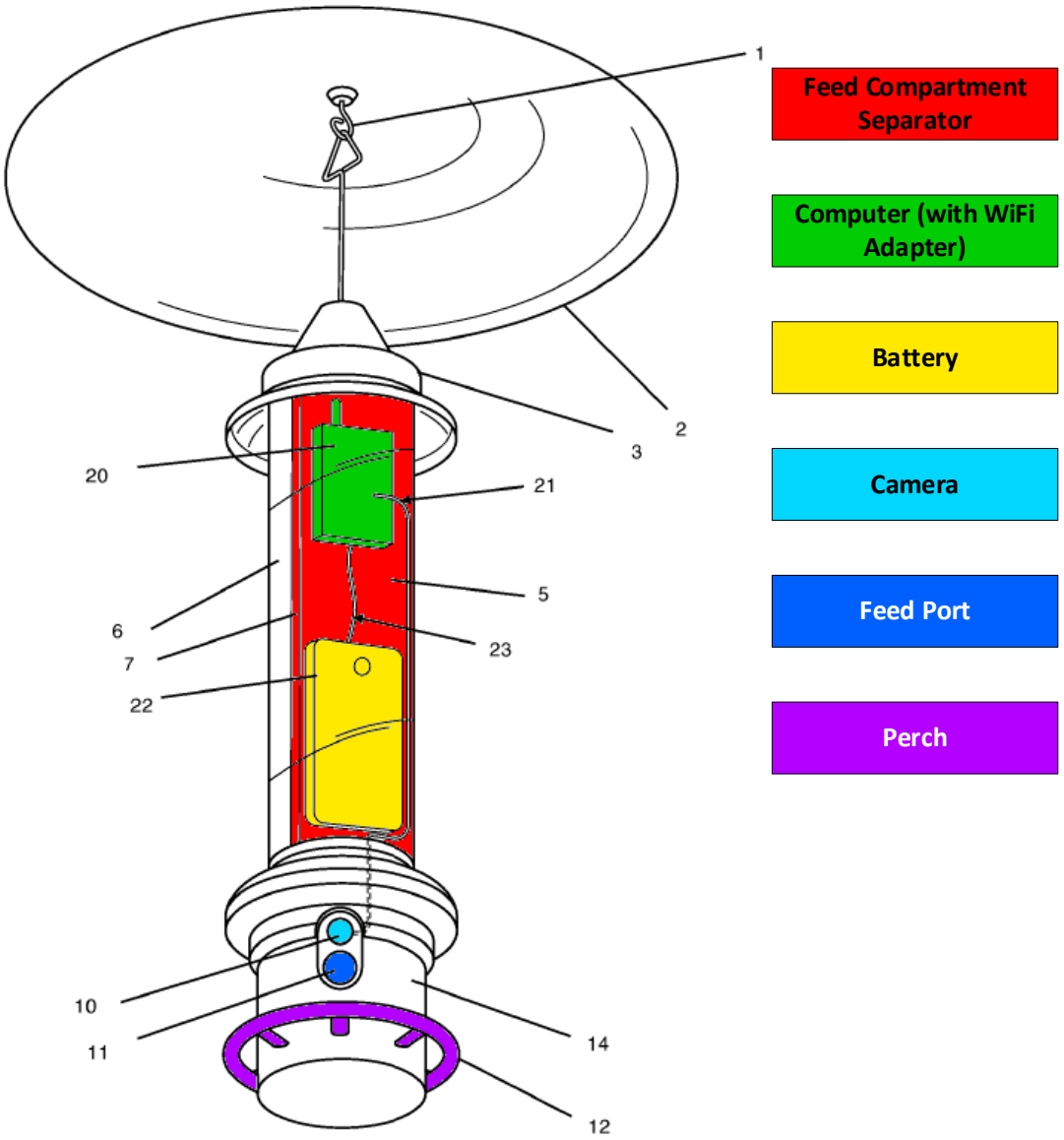


FIG. 1

(EX1003 at FIG. 1).

The electronics include a computer with a WiFi adapter, and a battery. The battery provides power, while the computer controls the camera and transmits video and/or images captured by the camera using the WiFi adapter. (EX1003 at col. 3:55-62).

The ‘242 Patent uses standard electronics and other parts. For example, the ‘242 Patent describes how to take a preexisting silo-type bird feeder (the Squirrel Buster Plus) and internally mount a Nanjing Paichi brand camera. (EX1003 at col. 4:21-43). Likewise, the ‘242 Patent refers to the Raspberry Pi as the computer controller for the system. (EX1003 at col. 3:18-50).

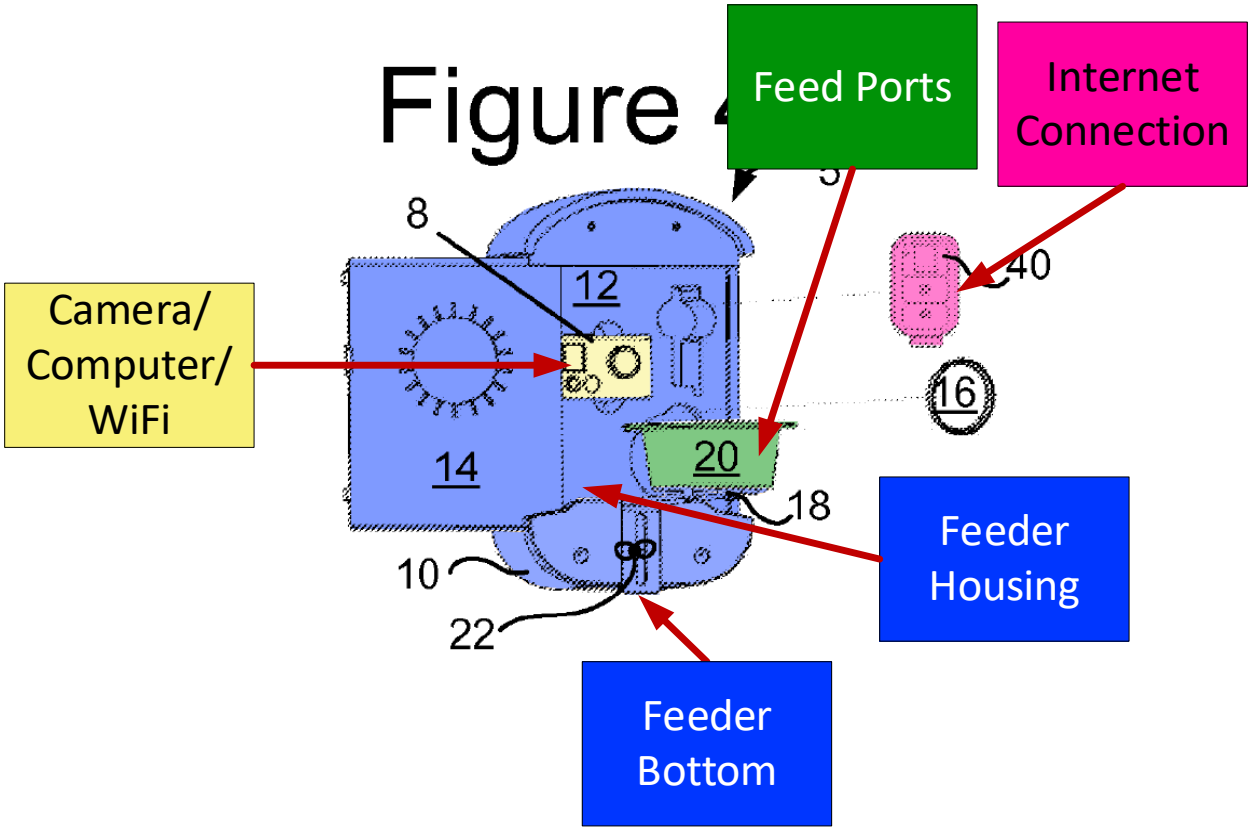
B. Summary of the Prosecution History of the Patent

The ‘242 Patent had a long and flawed prosecution history with two full appeals, and finally an Examiner’s Amendment, before allowance. During prosecution, the applicant amended the claim multiple times in an effort to distinguish the prior art. The Examiner erred by failing to appreciate the scope and relevance of the prior art. Specifically, the Examiner never fully evaluated important references, like Bennett, as will be discussed below.

PO’s original claim broadly encompassed a bird feeder with a camera for providing images over a wireless network.

Original Claim	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising: a. a feeder housing; b. a feeder bottom; c. a feed port disposed on the feeder bottom; d. a camera disposed in close proximity to the feed port; e. a computer in communication with the camera; f. an internal power source; and a g. a [sic] WiFi adapter.

The original claim was rejected over the prior art. In the first rejection, the Examiner found that Lovett anticipated the claim. Lovett disclosed a feeder housing, feeder bottom, feed port, camera in close proximity to the feed port, a computer in communication with the camera, an internal power source, and a WiFi adapter. (EX1004 at pg. BB50-51). The figure below illustrates Petitioner's understanding of the elements of Lovett.



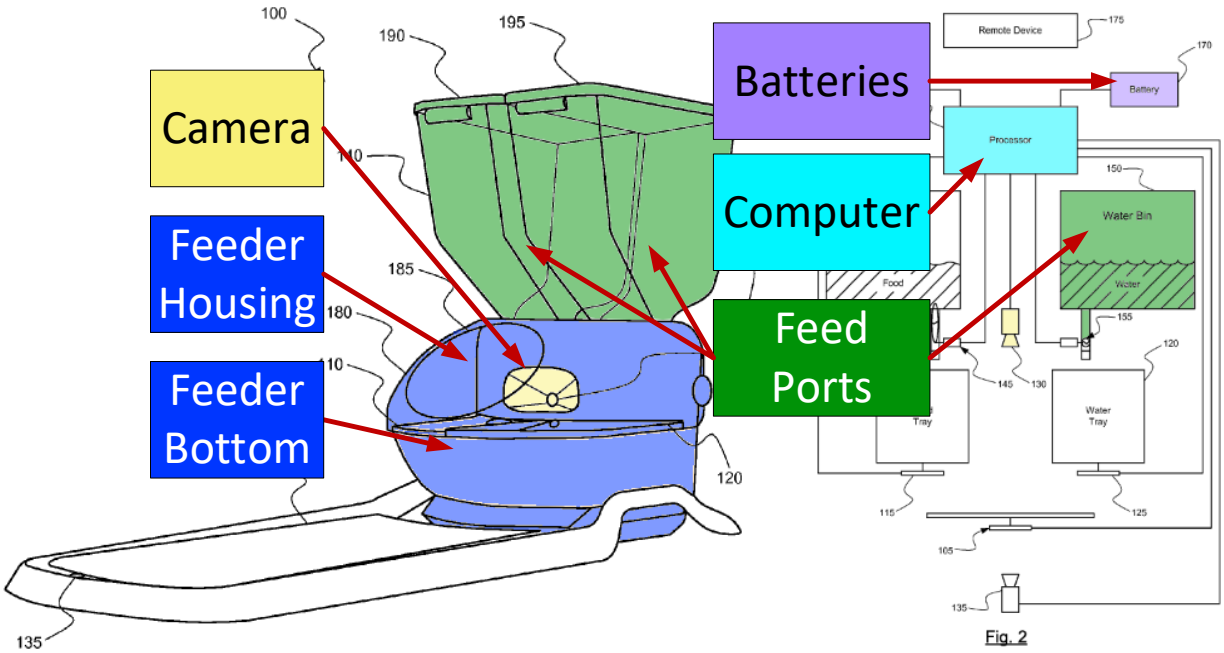
(*Id.*). The Examiner took official notice that the claimed WiFi dongles, multimedia interfaces, and USB ports were well-known features of phones and similar devices (e.g., computers), when issuing the rejection of various dependent claims. *(Id.)*.

Applicant amended the claims to attempt to overcome the first rejection. (EX1004 at pgs. BB60-63). Applicant added a built in camera, a computer, and an internet connection, and required that certain elements be in specific locations. For example, the camera was mounted to the bird feeder, the computer was placed inside the feeder housing, and the WiFi adapter was placed inside the feeder housing. (*Id.*)

1st Amendment	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising: a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising: a. a feeder housing; b. a feeder bottom; c. a feed port disposed on the feeder bottom; d. [[a]] the camera mounted to the bird feeder ~~disposed in close proximity to the feed port~~; e. [[a]] the computer located within the feeder housing ~~in communication with the camera~~; f. an internal power source; and [[a]] g. a WiFi adapter located within the feeder housing.

The Examiner found the applicant's arguments unconvincing, and again issued a rejection, finding that all the claims were anticipated by Sung or were obvious over Sung in view of Lovett. (EX1004 at pgs. BB75-78). Sung disclosed a

pet feeder with reservoirs for feed and a dispensing system that dispenses the feed into a chamber with a circular aperture permitting access to the chamber. (*Id.*; EX1019



(EX1019 at FIGS. 1, 2).

The Applicant appealed the rejection, with the main issue being whether Sung disclosed a bird feeder. (EX1004 at pg. BB153). This issue focused on whether the provisional application to which Sung claimed priority disclosed less than the utility. (*Id*. at BB153-154). The applicant alleged that Sung did not disclose a bird feeder because the provisional of Sung mentioned dogs and cats but not other pets. (*Id.*).

The Patent Trial and Appeal Board (PTAB) ruled that Sung did not disclose a bird feeder and thus was only entitled to priority for the subject matter found in

the provisional. (EX1004 at pgs. BB207-209). As a result, the rejection was reversed. The PTAB never reached the merits of what Lovett actually disclosed. (*Id*.).

The Examiner then issued another rejection, this time based solely on Lovett, finding that Lovett anticipated some of the claims, and that Lovett in view of Altman disclosed the remainder. (EX1004 at pgs. BB213-217). The Examiner found that Lovett disclosed a feeder housing (element 5), with a feeder bottom (element 18), which is the support for the bottom of the food bowl (element 20). (*Id.*). The food port was the food bowl, the camera was the electronic device having a camera (8), the computer was the same, since the specification of Lovett indicated that the electronic device (8) could be a cell phone or other mobile device or computer. (*Id.*). The internal power source was also disclosed because the power source could be a solar panel or external and internal power source. (*Id.*). The Examiner also identified a WiFi adapter since Lovett discloses using WiFi data hub devices (element 40) to connect to the internet for streaming video. (*Id.*).

Applicant filed a second appeal. (EX1004 at pg. BB290, *et seq.*). This time, the question was one of claim construction, as the Board observed. The disputed claim term was "port." (EX1004 at pgs. BB345-347).

The Board reversed the Examiner on two grounds. First, the Examiner inconsistently identified the feeder, and therefore had failed to provide the element-

by-element analysis required for anticipation. (EX1004 at pgs. BB346). Second, the Board found that Lovett did not disclose a "port," where a port was defined by the Board as "a small opening in a container or vessel especially for viewing or for the controlled passage of material." (EX1004 at pg. BB348). Lovett used a small bowl for feed, and the opening of the bowl was not considered a port. (*Id*.). The Board also found that the Examiner had used neither Altman nor Bennett to provide the missing limitations in view of the claim construction determination, but did not decide whether those references disclosed the missing limitation.[1] (*Id*.).

An Examiner's amendment followed, (EX1004 at pg. BB372-373), resulting in allowance. The Examiner erred by not issuing a rejection based on Bennett as a primary reference, thereby failing to understand the full scope of the prior art. Instead, the Examiner amended the claims to include a requirement that the camera be internally mounted to the bird feeder such that the camera is aligned with the feeding port to observe feeding birds.

[1] As will be shown below, Bennett, which was never fully considered by the Examiner and never applied against the independent claims, fully discloses the independent claims. Bennett was applied only against claims 3 and 12, and found to disclose both, which includes the feed compartment and separator. (EX1004 at pg. BB245).

Examiner's Amendment	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising: a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising: a. a feeder housing; b. a feeder bottom; c. a feed port disposed on the feeder bottom; d. the camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds; e. the computer located within the feeder housing; f. an internal power source; and g. a WiFi adapter located within the feeder housing.

III. Summary of the Prior Art

The prior art discloses all the elements of the claims.

A. Bennett

Bennett discloses a bird feeder capable of supplying food or liquid to birds. (EX1001 ¶¶ 37-40; EX1005 ¶¶ 7-8). Bennett's bird feeder includes cameras, wireless connectivity, and a computer controller managing those functions. "Flying animal enthusiasts using [Bennett] may be able to view & record live video & audio feeds of birds and other animal action around their substance stations, check the level of the sustenance supply, the sustenance and air temperatures, current

weather conditions… statistics of activities at the station… from their mobile device application, an online web application, or an application hosted on a local server or on the substance station controller itself." (EX1001 ¶¶ 37-40; EX1005 ¶ 38).

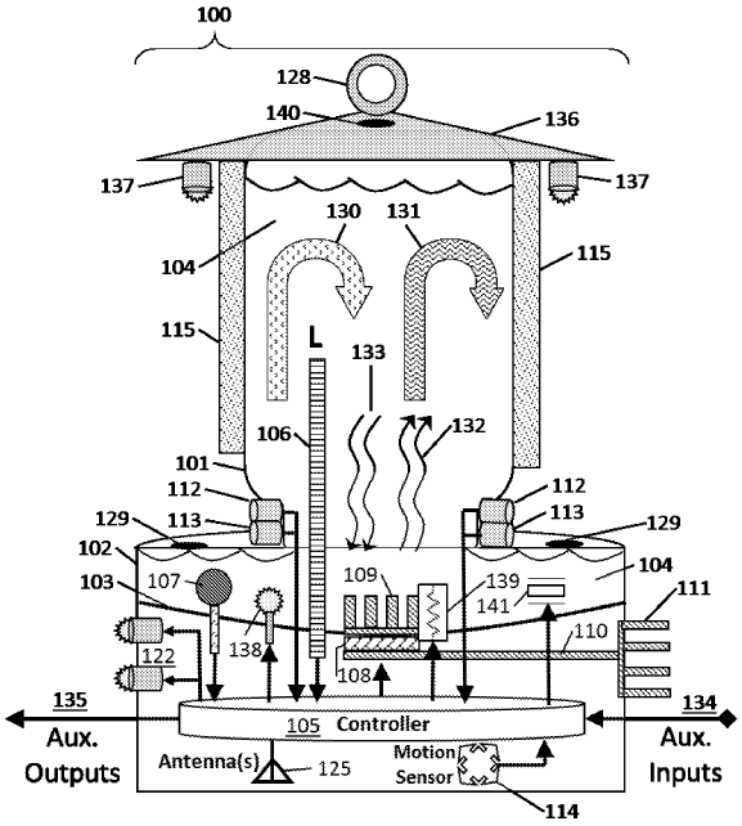


FIG. 1A

Bennett discloses cameras (112) for capturing and monitoring birds. (EX1001 ¶¶ 37-40; EX1005 ¶ 38). The cameras (112) may be located in the cap of the bird feeder or nested along or in the sides of the bird feeder, as shown in FIG. 1A. (EX1001 ¶¶ 37-40; EX1005 ¶ 49). The cameras observe feeding ports (129) located on the surface of the lower portion of the bird feeder. (*Id*.). The controller

(105) manages all of the sensors and other functions, and is equipped with an antenna (125) and other hardware necessary to transmit the data the feeder collects, including images and video. (EX1001 ¶¶ 37-40; EX1005 ¶¶ 48-57). This data can be transmitted via WiFi or any other wireless protocol. (EX1001 ¶¶ 37-40; EX1005 ¶ 55). Inside the feeder, Bennett also discloses a separator (103) that separates the electronics from feed. (EX1001 ¶¶ 37-40; EX1005 ¶ 41).

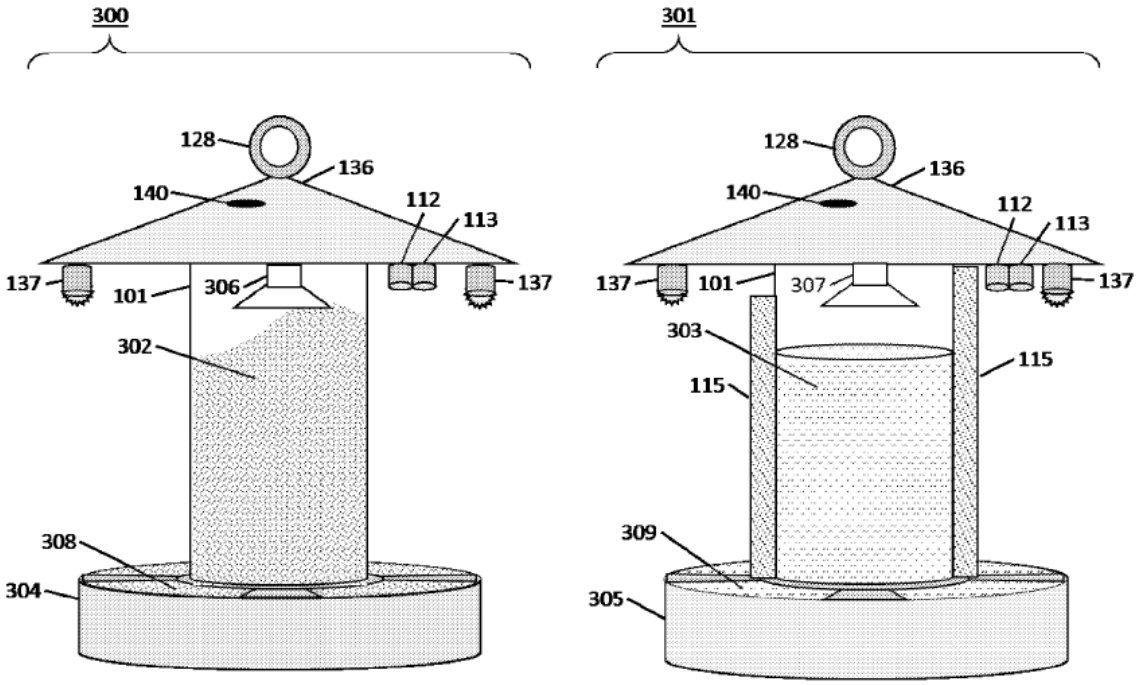


FIG. 3A

(EX1005 at FIG. 3A).

B. Bonham

Bonham is a bird house with a camera. Bonham's bird house includes an aperture (6) for entry and exit by birds, (EX1001 ¶ 41; EX1006 ¶¶ 13-14), and a camera (image sensor (4)) for observing birds within the bird house. (*Id.*).

Bonham discloses measuring feeding rates of birds. (EX1001 ¶ 41; EX1006 ¶ 4). A microcontroller board (2) drives the entire system, and data is transmitted wirelessly using the wireless transceiver (3). (EX1001 ¶ 41; EX1006 ¶¶ 13-14). Batteries (7) power the hardware, and solar panels (8) provide power to the internal components of the bird house and charge the batteries. (*Id.*).

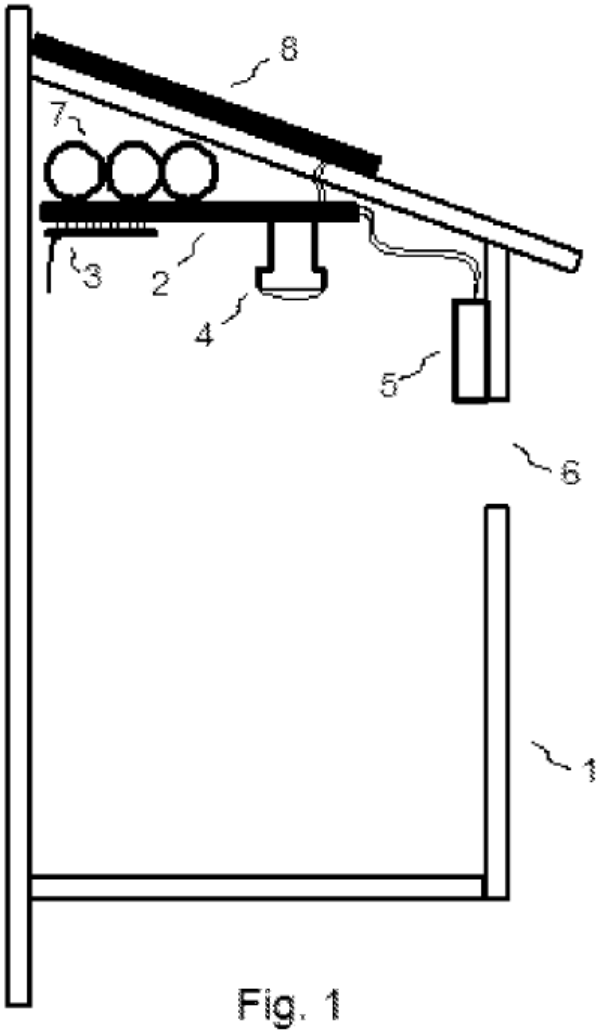


Fig. 1

(EX1006 at FIG. 1).

C. Kin

Kin is a pet feeding system, with a food dispenser that dispenses food through a feed port into a tray area in the feeder base. (EX1001 ¶¶ 42, 43; EX1007 ¶¶ 15-18). Kin can dispense both solid and liquid sustenance. (*Id.*). Kin comes with a camera and microphone, positioned to see the pet at the feeder, which streams video via a wireless network to an end-user device so that the user can watch their pet eat and monitor its eating behaviors, as well as control access to food. (*Id.*).

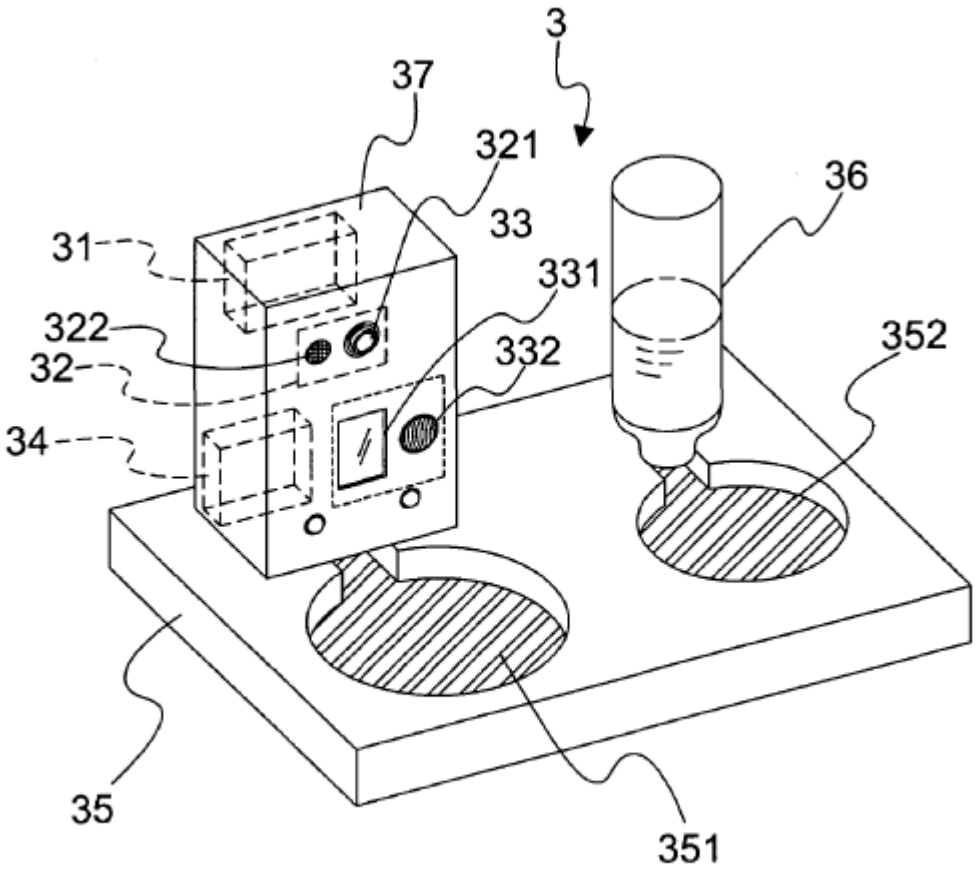


FIG.2

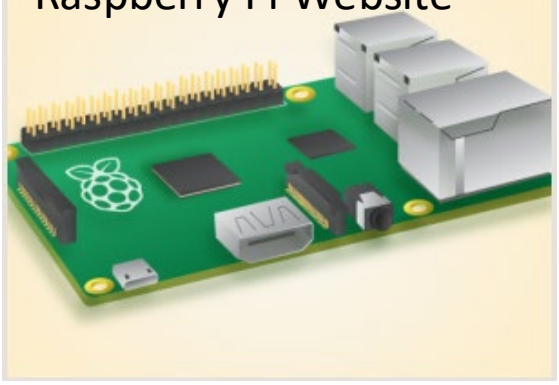
(EX1007 at FIG. 2).

D. Raspberry Pi 2 Model B

The Raspberry Pi 2 Model B is a microcontroller board. As of February 28, 2015, the Raspberry Pi website described it as a 900NHz quad-core ARM cortex-A7 CPU coupled with 1GB of RAM. (EX1001 ¶¶ 49-51; EX 1010). It came with 4 USB ports, 40 GPIO pins, an HDMI port, an Ethernet port, a 3.5mm combined audio jack composite video connection, a Camera Serial Interface (CSI), a Display Serial Interface (DSI), a micro SD card slot, and a specialized graphics core for simple graphics processing. (EX1001 ¶¶ 49-51; EX 1010). The Model B was completely compatible with the previous Raspberry Pi 1. (EX1001 ¶¶ 49-51; EX 1010).

The '242 Patent mentions using a Raspberry Pi, and the schematic diagram of the Raspberry Pi used in the '242 Patent is similar to the Raspberry Pi 2 Model B. (EX1001 ¶¶ 49-51; EX 1010). It was well-known that the Raspberry Pi was a popular component in similar projects and with hobbyists and tinkerers. (EX1001 ¶¶ 49-51; EX 1010; *see also* EX1014; EX1015).

Raspberry Pi Website



'242 Patent Figures

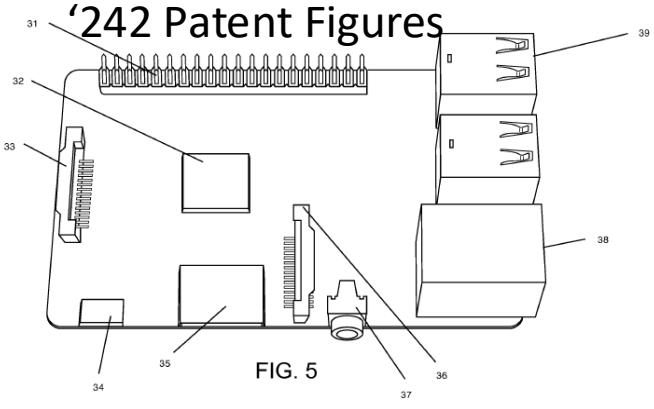


FIG. 5

(EX1010 at 12; EX1003 at FIG. 5).

E. Rofougaran

Rofougaran describes a wireless telephony USB dongle that provides WiFi functionality to devices the dongle is plugged into. (EX1001 ¶¶ 52-54; EX1009 ¶ 107).

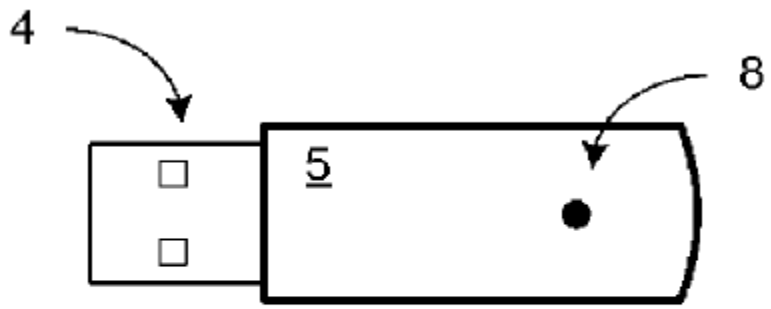


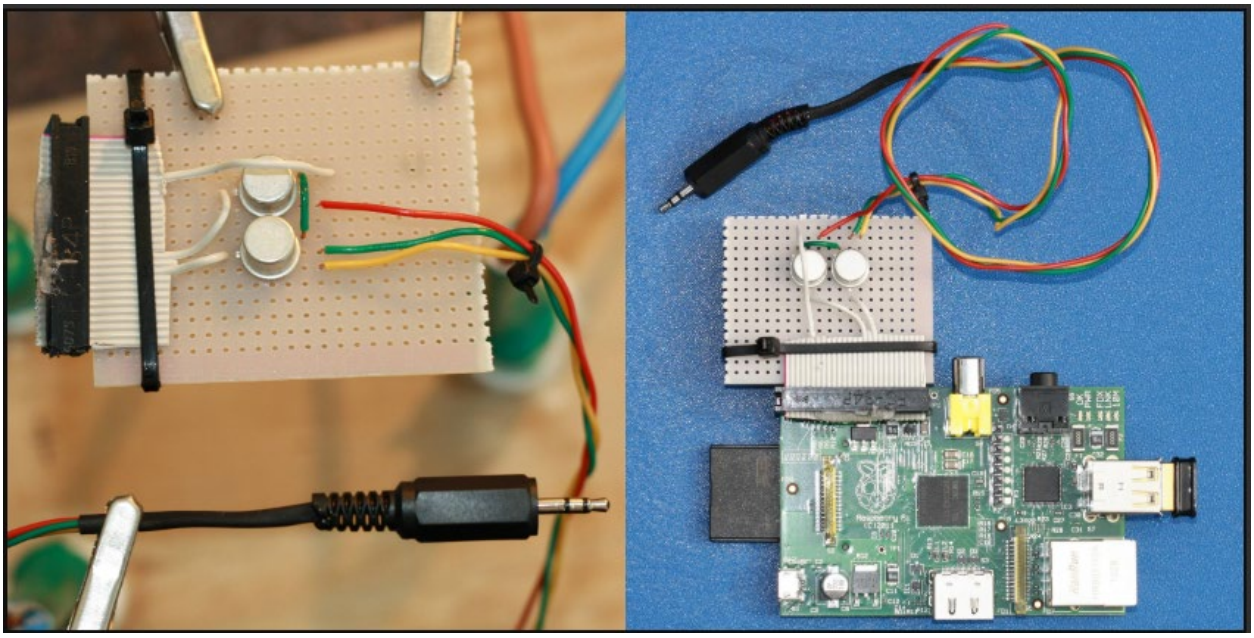
FIG. 3

(EX1009 at FIG. 3).

F. Bevan

Bevan describes how to use a Raspberry Pi (and other components, like a camera) to take pictures of birds at a table-style bird feeder. (EX1001 ¶¶ 44, 45; EX1010 at 5-9). Bevan features a webcam for motion detection which triggers a camera shutter to take images of birds. (EX1001 ¶¶ 44, 45; EX1010 at 5-9). Bevan explains how to configure and program the Raspberry Pi, and how to build the camera control system. (EX1001 ¶¶ 44, 45; EX1010 at 5-9). The Raspberry Pi is

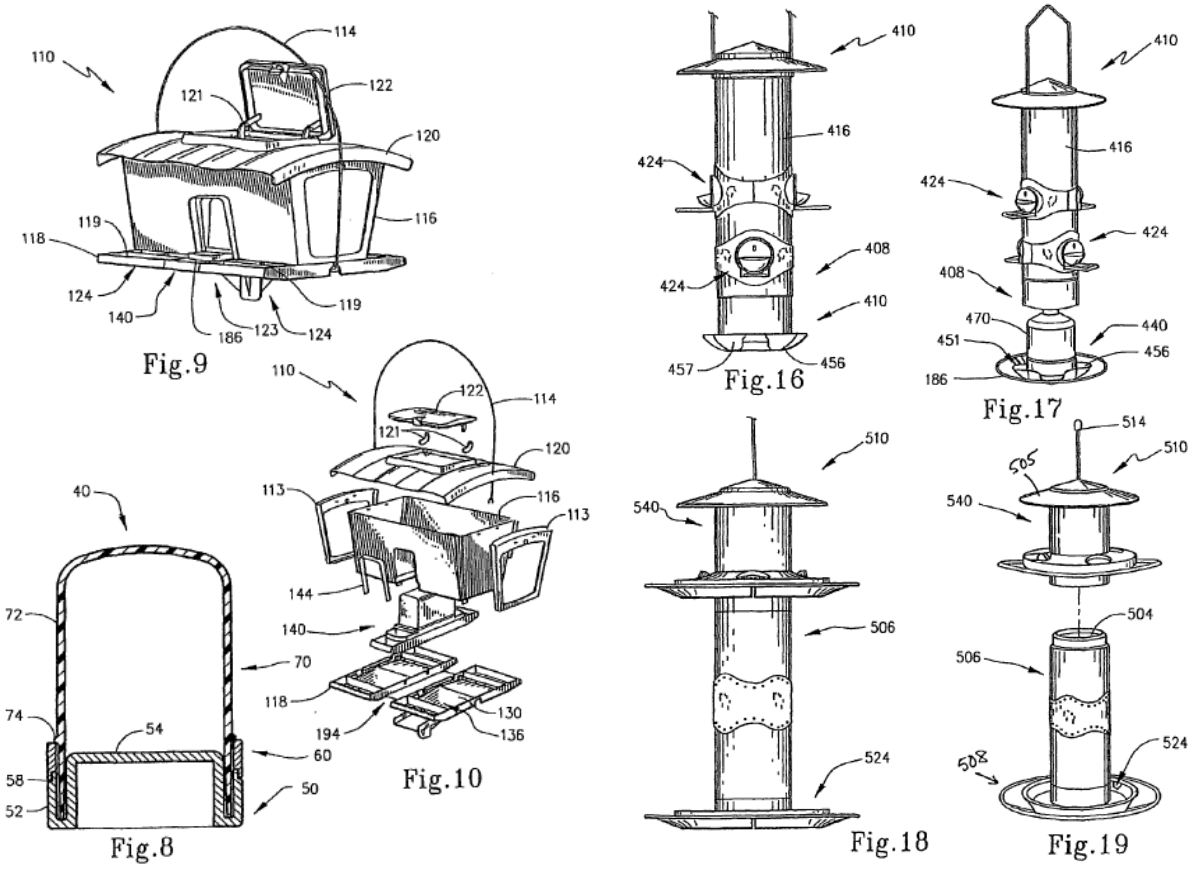
used as the controller for the picture-capturing system. (EX1001 ¶¶ 44, 45; EX1010 at 5-9).



(EX1010 at 5-9 (3rd image)).

G. Humphries

Humphries discloses a variety of silo- and hopper- style bird feeders with modular components. (EX1008 at FIGS. 20-23, col. 5:47-67, col. 6:1-15, col. 9:50-67).



IV. Level of Skill of a Person of Skill in the Art

A person of ordinary skill in the art would have had a bachelor of science in mechanical engineering or at least two years' experience with the design of electromechanical devices prior to the critical date of the '242 Patent. (EX1001 ¶ 20).

V. Grounds for Standing (37 C.F.R. § 42.104(a))

A. Challenges and Relief Requested (37 C.F.R. § 42.104(b))

The claims of the '242 Patent should be invalidated based on the following grounds:

Ground	**Prior Art**	**Basis**	**Relief Requested**
1	Bennett	35 U.S.C. § 103	Invalidation of claims 1, 3
1A	Bennett in view of Rofougaran.	35 U.S.C. § 103	Invalidation of claim 2
1B	Bennett in view of Bevan and Raspberry Pi 2 Model B	35 U.S.C. § 103	Invalidation of claims 4-6
2	Bonham	35 U.S.C. § 103	Invalidation of claim 1
2A	Bonham in view of Rofougaran	35 U.S.C. § 103	Invalidation of claim 2
2B	Bonham in view of Bennett and Humphries	35 U.S.C. § 103	Invalidation of claim 3
2C	Bonham in view of Bevan and Raspberry Pi 2 Model B	35 U.S.C. § 103	Invalidation of claims 4-6
3	Kin	35 U.S.C. § 103	Invalidation of claim 1

3A	Kin in view of Rofougaran	35 U.S.C. § 103	Invalidation of claim 2
3B	Kin in view of Bennett	35 U.S.C. § 103	Invalidation of Claim 3
3C	Kin in view of Bevan and Raspberry Pi 2 Model B	35 U.S.C. § 103	Invalidation of claims 4-6

B. Qualifications of the Prior Art References

The '242 Patent has an earliest priority date of June 10, 2015, which is the filing date of the '242 Patent. The following references predate the priority date of the claims of the '242 Patent for at least the reasons given below.

Bonham is prior art under 35 U.S.C. § 102(a)(1) because it is a patent publication published on March 1, 2012.

Bennett is prior art under 35 U.S.C. § 102(a)(2) because it issued as U.S. Patent 9,961,885 on May 8, 2018, and claims priority to U.S. Application 14/517,913, filed October 19, 2014. The Specifications of Bennett and the parent '913 Application are virtually identical and no new matter was added. Therefore, the effective filing date of Bennett is October 19, 2014. (35 U.S.C. § 102(d)(2)).

Kin is prior art under 35 U.S.C. § 102(a)(1) because Kin is a patent publication published on December 27, 2007.

Rofougaran is prior art under 35 U.S.C. § 102(a)(1) because it was published January 1, 2009.

Raspberry Pi 2 Model B is prior art under 35 U.S.C. § 102(a)(1) because the webpage was published at least as early as February 28, 2015. (EX1022).

Bevan is prior art under 35 U.S.C. § 102(a)(1) because Bevan was available at least as early as January 30, 2015. (EX1022).

VI. Legal Standards

Inter partes Review (IPR) may be instituted on any grounds that could be raised under 35 U.S.C. §§ 102, 103 on the basis of patents and printed publications. The petitioner must show, by a preponderance of the evidence, that each challenged claim is invalid. (35 U.S.C. § 316(e)).

To show a reference is obvious, the petitioner must show by a preponderance of the evidence that the differences between the prior art and the claimed invention as a whole would have been obvious before the effective filing date of the invention to a POSITA to which the invention pertains. (35 U.S.C. § 103). Under this analysis, any need or problem known in the field of endeavor of the invention at or before the time of the invention can provide reason for combining elements to produce the claimed invention. (*KSR Intern. Co. v. Teleflex Inc*., 550 U.S. 398, 420 (2007)). An invention may be obvious in numerous circumstances, including (1) if the invention is the combination of known elements according to known methods

to yield predictable results, (2) if the invention is a simple substitution of one known element for another to obtain predictable results, (3) if the invention uses known techniques to improve similar devices in the same way, (4) if the invention applies a known technique ready for improvement to yield predictable results, (5) if the invention results from a combination that is obvious to try, (6) if market forces would prompt the invention in a predictable way, or (7) if any other teaching, suggestion, or motivation exists that would have led one of ordinary skill in the art to the invention. (*KSR*, 550 U.S. at 420).

VII. Claim Construction

The claim terms should be construed consistent with how the PO used those terms during prosecution of patent application.

A. "Built In"

The term "built in" should be construed to mean "functionally inseparable from [the bird feeder]."

The claims require "a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising[…]" The applicant applied "built in" as a modifier to camera, computer, and internet connection. (EX1004 at 233). During prosecution, applicant explained repeatedly, when trying to distinguish over the prior art, that "built in" meant "functionally inseparable from" the bird feeder.

The applicant argued that the claims of the '242 Patent distinguished over the prior art because Lovett's components were OEM type components that could be separated from the bird feeder and could still meaningfully function on their own:

> Applicant's camera, computer and other elements are self contained within a bird feeder, **not the stand-alone type of discrete OEM devices disclosed by Lovett**. This distinction is **important** because **the claimed invention does not contain any components that have significant value as separate components outside the bird feeder; does not provide any means for separating the functionality from the feeder**; and therefore does not present problems with these stand-alone elements.

(EX1004 at 67) (emphasis added). Applicant argued that Lovett's components were described as separable, and not built in:

> Lovett does not disclose a computer **in** the feeder housing of the bird feeder according to the claimed invention. Lovett discloses a box that provides physical support and electronic interconnections to a **third party camera or controller** which are always described as **separable**

> devices that may provide video generation and internet connectivity regardless of its location. Lovett does not have any self contained video capability within the bird feeder—only those provided by the third party mechanism outside the bird feeder.

(EX1004 at 68, 97) (emphasis added). The applicant made similar arguments with respect to the computer, arguing that Lovett did not disclose a computer built in to the feeder housing. (EX1004 at 233). For example, when describing the claimed built in computer, the applicant stated that the:

> dedicated computer (e.g., Raspberry Pi) is built in to the bird feeder. It is integrated with the self-contained bird feeder structure and design, providing the video generation functionality using digital information retrieved from the internal camera.

(EX1004 at 262).

Applicant argued repeatedly that "built in" required the elements be not functionally separable from the bird feeder.

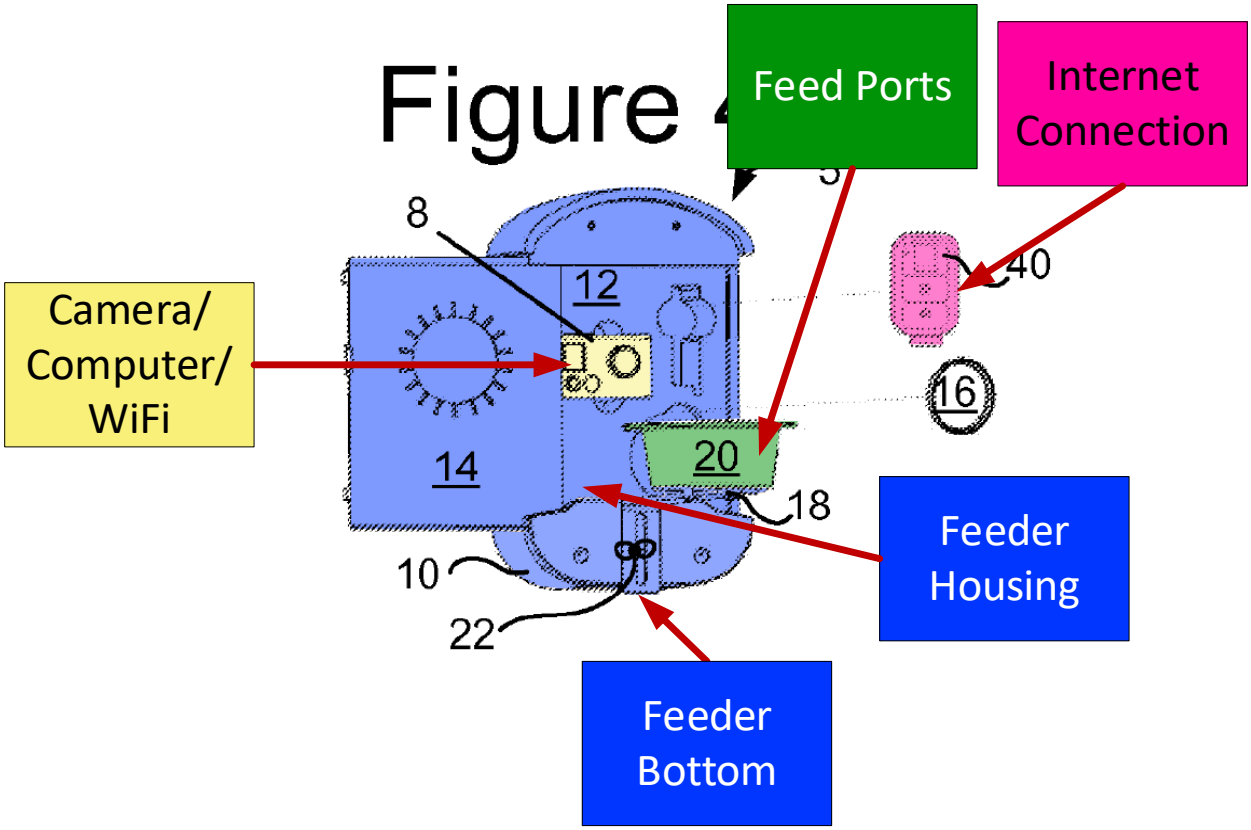
B. "Internally Mounted"

The applicant defined the term "internally mounted" to mean that the component is "inside and mounted to the feeder [housing]."

The claims require "the camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds […]"

PO distinguished their claims over Lovett by arguing that "Lovett neither discloses nor suggests the camera, power source, nor WiFi adapter *inside* the bird feeder." (EX1004 at 66, 259, 261) (emphasis in original).

In Lovett, the camera is mounted to a housing, while a bowl is held on an arm that extends away from the housing. The camera is pointed at the bowl.



The applicant repeatedly attempted to distinguish Lovett by arguing that Lovett did not contain elements that were *inside* the bird feeder:

> Lovett is not a self-contained feeder. Lovett neither discloses nor suggests the camera, computer, power source, nor WiFi adapter *inside* the bird feeder. Therefore, Lovett is not self-contained, as is the Applicant's claimed invention.

(EX1004 at 95) (emphasis in original).

> Lovett is asserted to disclose a self-contained bird feeder for providing detailed images over a wireless network. However, Lovett neither discloses nor suggests Applicant's claimed built in camera (nor power source, or WiFi adapter) ***inside*** the bird feeder. Therefore, Lovett is not self-contained, and does not disclose a built-in camera as required by the Applicant's claimed invention.

(EX1004 at 230) (emphasis in original).

Furthermore, the '242 Patent itself contains only examples where the camera is both inside and mounted to the feeder housing. "A viewing port is **machined into the bird feeder**. The viewing port is aligned with the feed port to provide an optical path from an **internally mounted** camera to the area in front of the feed

port. A digital camera is **mounted in the bird feeder**." (EX1003 at col. 4:21-42) (emphasis added). This is reinforced by the fact that the field of view of the camera is located inside the bird feeder: "In the present invention, the bird feeder is not located in the field of view of the camera. It is in the ***same*** location as the camera—inside the claimed bird feeder." (EX1004 at 230) (emphasis in original).

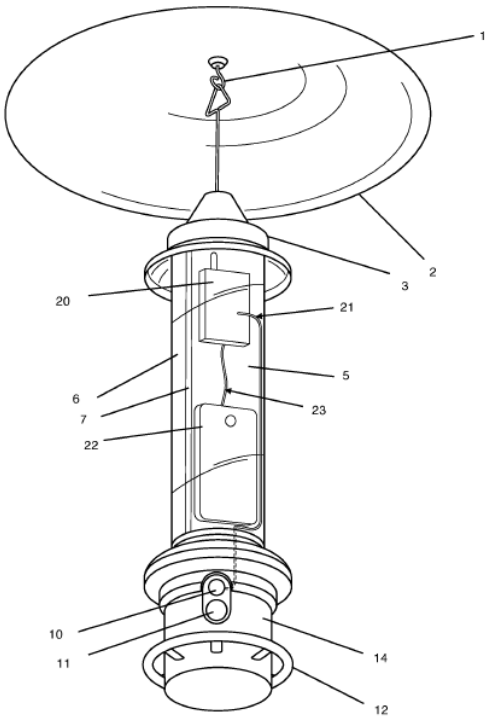


FIG. 1

C. Alternative Constructions

Regardless of whether the Board adopts the above-constructions, the prior art renders the claims obvious and invalid under any reasonable construction of the claim terms.

VIII. Ground 1 | Bennett

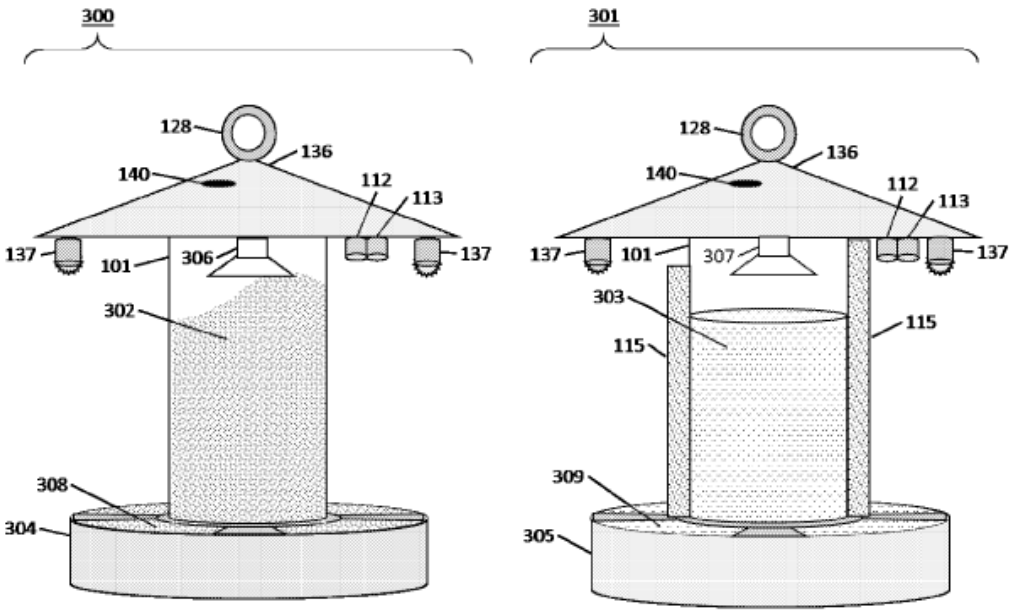


FIG. 3A

(EX1005 at FIG. 3A).

A. Claim 1

1. Claim 1(pre)

1(pre)	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising:

Bennet discloses a self-contained bird feeder configured to provide detailed images over a wireless network. (EX1001 ¶¶89-91; EX1005 (Abstract)).

Bennett discloses a self-contained bird feeder. The bird feeder of Bennett is self-contained because all the parts of the feeder are located within or under the cap (136) of the feeder, within the base of the feeder, or within the silo of the

feeder, and would not be meaningfully separable from the feeder, unlike an OEM device. (EX1001 ¶¶89-91; EX1005 at FIG. 1A, 3A, 3B). There are no standalone parts to Bennett. (*Id*).

Bennett is configured to provide detailed images using its image sensors. (EX1001 ¶¶89-91; EX1005 ¶ 7, 8, 49).

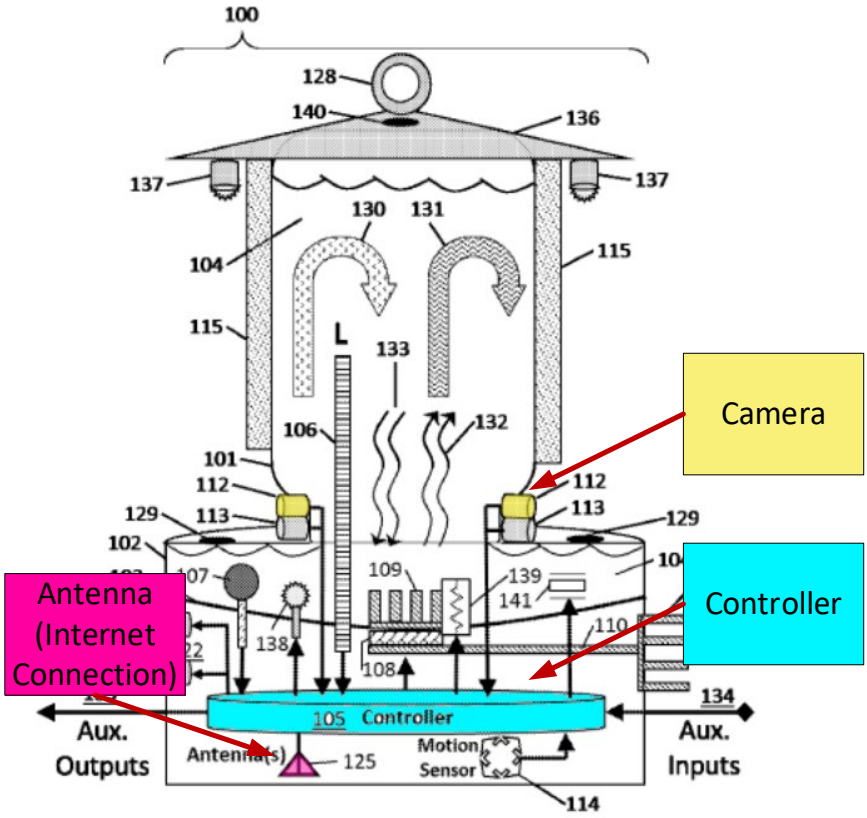


FIG. 1A

(EX1005 at FIG. 1A).[2]

2. Claim 1(a)

[2] Bennett refers to both 112 and 113 as the image sensor in the specification.

1(a)	a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising:

Bennett discloses a bird feeder with a built in camera, computer, and internet connection. Bennett discloses a camera (imaging sensor): "[t]he cap [of the bird feeder] may be fitted with… imaging 113 sensors depicted mounted on the cap 136 in FIG. 3A." (EX1001 ¶¶92-96; EX1005 ¶ 40). Bennett further discloses a computer inside the base of the feeder that executes software to process data from the sensors: "data from sensors such as, but not limited to imaging 112, audio 113, or motion 114 sensors may be processed by software executing on the controller 105 to determine the presence of an animal and the station and to apply power to the UV emitters 138 only when no animals are present." (EX1001 ¶¶92-96; EX1005 ¶47). The imaging sensors capture images of birds at the bird feeder. (EX1001 ¶¶92-96; EX1005 ¶8, 38).

Bennett discloses using a wireless network over an internet connection: "[t]he wireless router 600 may be in direct wireless communication with one or more stations (e.g., station 400, station 301)… The wireless router 600 may serve as an AP [access point] through which mobile devices… may communicate directly with one or more wirelessly enabled sustenance stations… Cellular network 605 and cloud servers 606 may communicate with the AP 600 via internet protocol, or other networking protocols that may be deemed suitable for a given

embodiment." (EX1001 ¶¶92-96; EX1005 ¶¶86, 51). Bennett also discloses that the bird feeder can indirectly communicate with cloud servers 606 via the router 600. (EX1001 ¶¶92-96; EX1005 ¶¶86, 87).

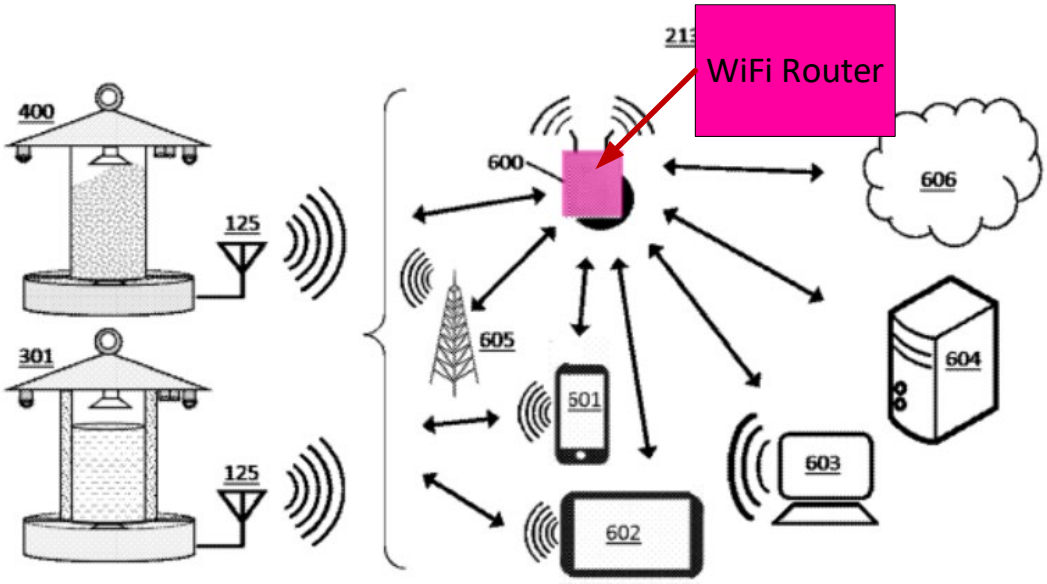


FIG. 6

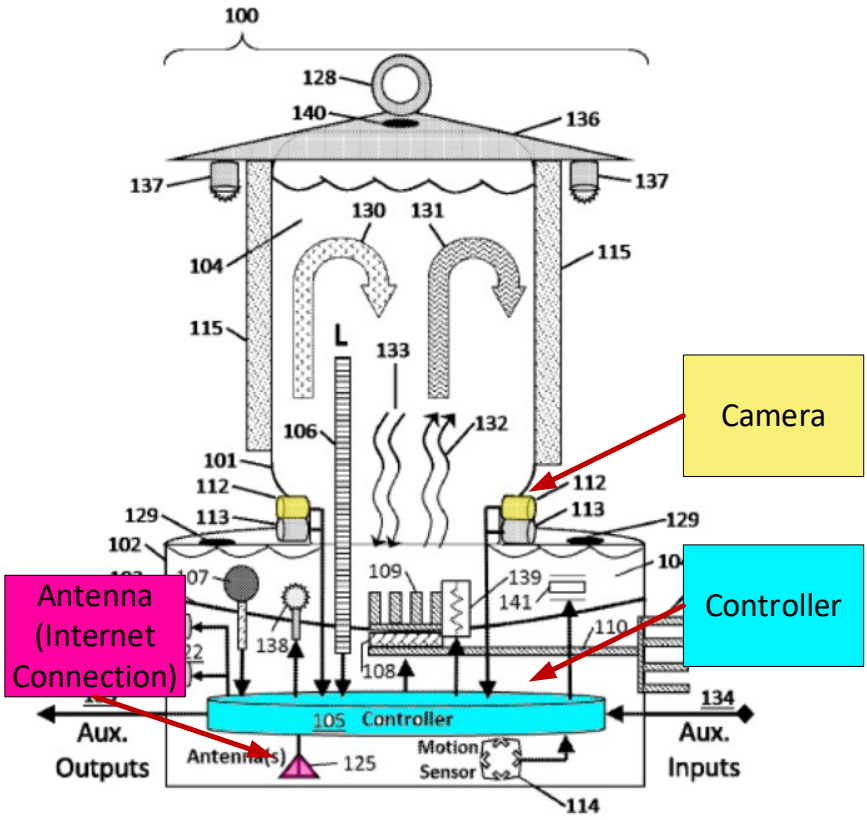


FIG. 1A

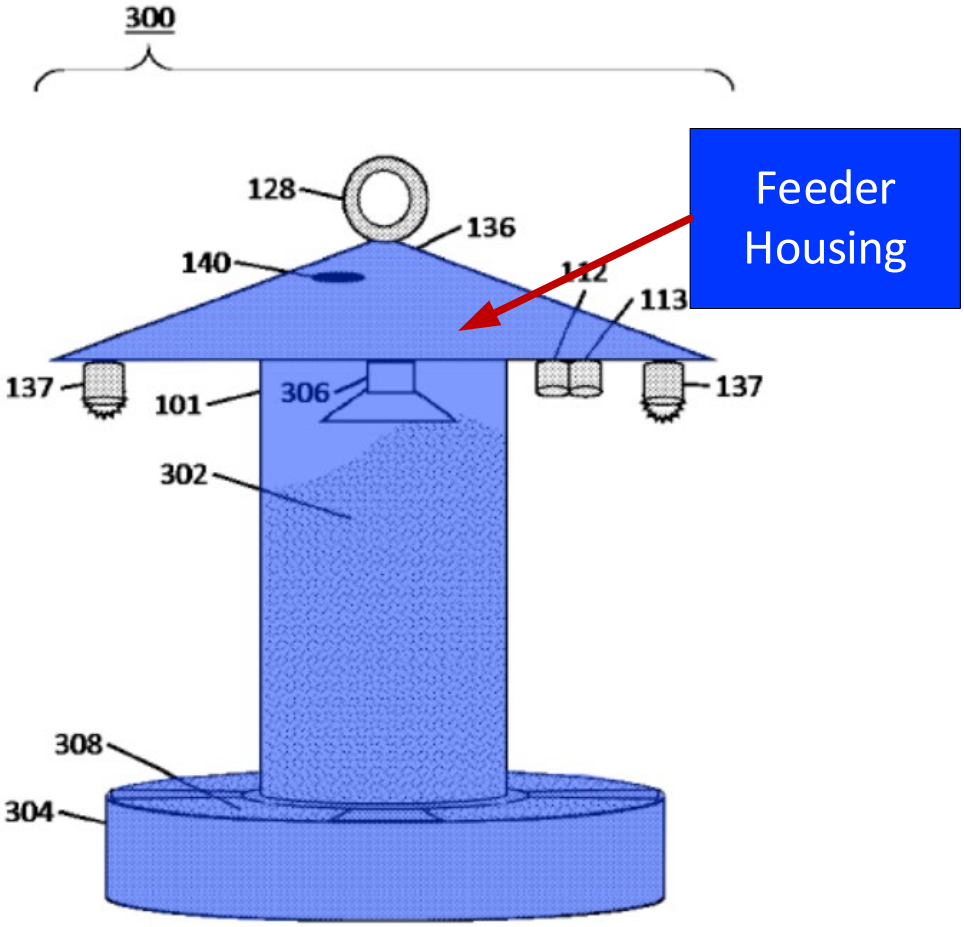
(EX1005 at FIG. 1A).

3. Claim 1(b)

1(b)	a. a feeder housing;

Bennett discloses a feeder housing: "The storage vessel 101 of station 400 stores solid sustenance 302… and attached to the bottom of storage vessel 101 is the sustenance dispensing tray 401 into which solid sustenance 302 from the storage vessel 101 is dispensed. The feeding tray 401 is removably attached to the storage vessel 101… to facilitate cleaning and solid sustenance 302 replacement,

and has one or more openings 308 positioned around the top surface from which the animals access the sustenance 302 for consumption." (EX1001 ¶97; EX1005 ¶¶81, 39, 73, 74).



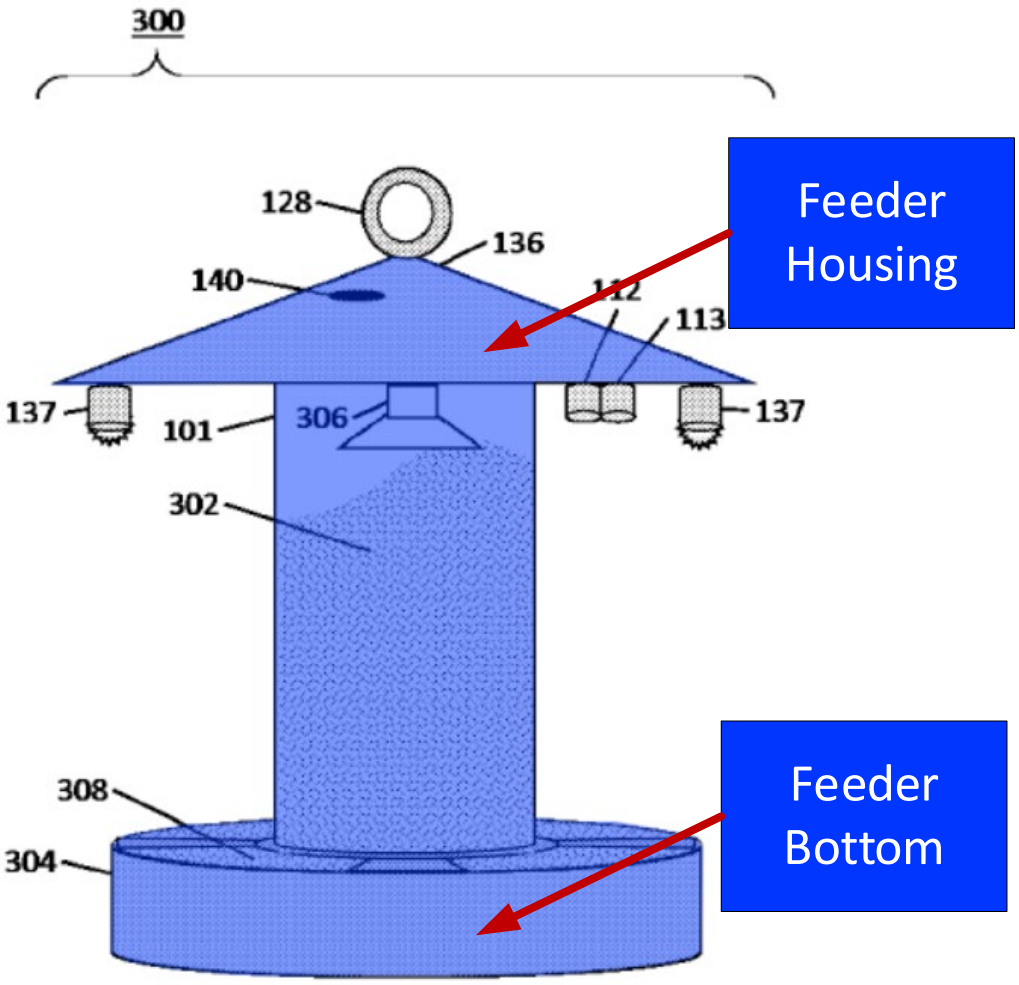
(EX1005 at FIG. 3A).

4. Claim 1(c)

1(c)	b. a feeder bottom;

Bennett discloses a feeder bottom, for example, the feeding tray/sustenance dispensing tray 401, or equivalent members of the other stations 100, 300, 301,

400. (EX1001 ¶98; EX1005 ¶¶39, 73, 81). Tray 401 is coupled to the feed compartment and the upper portions of the feeder housing. (EX1005 ¶81). "The storage vessel 101 of station 400 stores solid sustenance 302… and attached to the bottom of storage vessel 101 is the sustenance dispensing tray 401 into which solid sustenance 302 from the storage vessel 101 is dispensed. The feeding tray 401 is removably attached to the storage vessel 101… to facilitate cleaning and solid sustenance 302 replacement, and has one or more openings 308 positioned around the top surface from which the animals access the sustenance 302 for consumption." (*Id*).



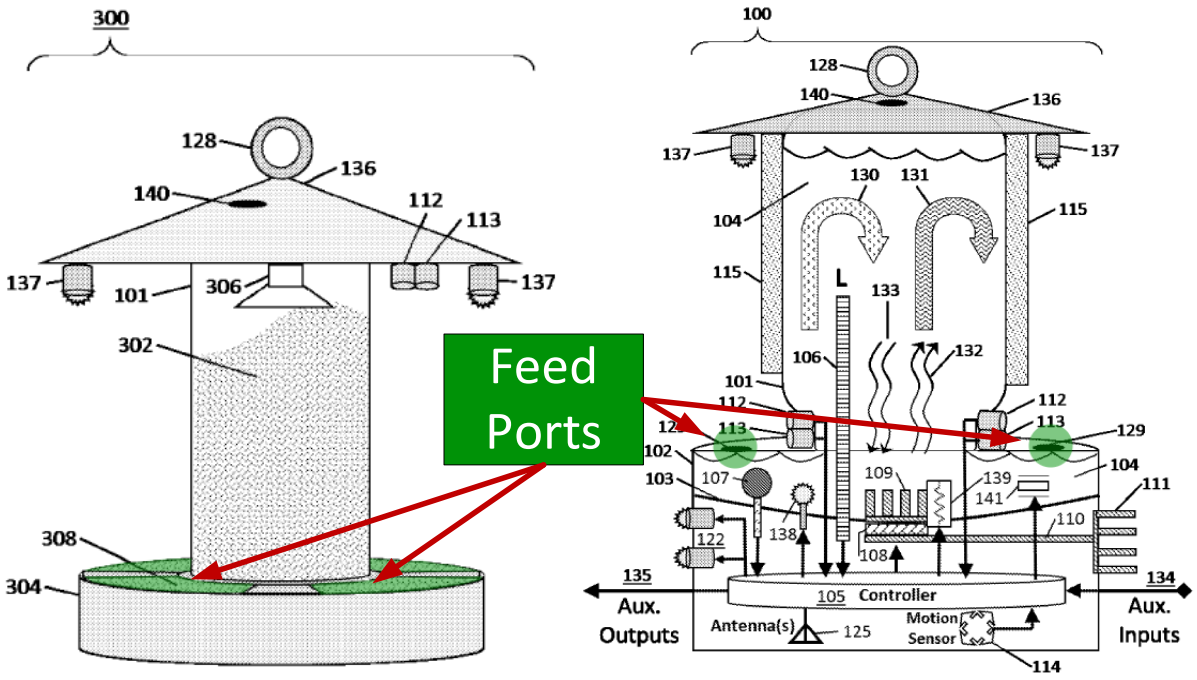
(EX105 at FIG. 3A).

5. Claim 1(d)

1(d)	c. a feed port disposed on the feeder bottom;

Bennett discloses feed ports incorporated into the feeder bottom. These ports are the openings 308/129 positioned around the top surface of the feeder bottom. (EX1001 ¶99; EX1005 ¶¶39, 81). "The storage vessel 101 of station 400 stores solid sustenance 302… and attached to the bottom of storage vessel 101 is the

sustenance dispensing tray 401 into which solid sustenance 302 from the storage vessel 101 is dispensed. The feeding tray 401 is removably attached to the storage vessel 101… to facilitate cleaning and solid sustenance 302 replacement, and has one or more openings 308 positioned around the top surface from which the animals access the sustenance 302 for consumption." (EX1001 ¶99; EX1005 ¶¶73, 81). Station 300 is similar to station 400 as well: "Flying animals… may leave infectious agents transmitted through direct contact with the liquid 104 in the feeder as they draw sustenance through feeding station ports 129, or by other means." (*Id.*; EX1005 ¶46).



(EX1005 at FIGS. 1A, 3A).

6. Claim 1(e)

1(e)	d. the camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds;

Bennett discloses an internally mounted camera that is mounted to the bird feeder such that the camera is aligned with the feed ports to observe feeding birds. (EX1001 ¶100; EX1005 ¶¶8, 38). The cameras of Bennett are visibly aligned with the feeding ports to observe feeding birds. Bennett is clear that "[a]ny number of imaging or audio sensors may be used in an embodiment, and may be located near feeding ports as shown in FIG. 1A, or on the underside of the cap as depicted in FIG. 3A, or anywhere as required… to optimize animal or station area viewing…" (EX1005 ¶49).

The camera is internally mounted at least because it is mounted in and to the cap, (EX1001 ¶101). (EX1001 ¶101). As POSITA would have known, mounting in this way requires at least some of the mounting elements to be run through (internal) to the feeder.

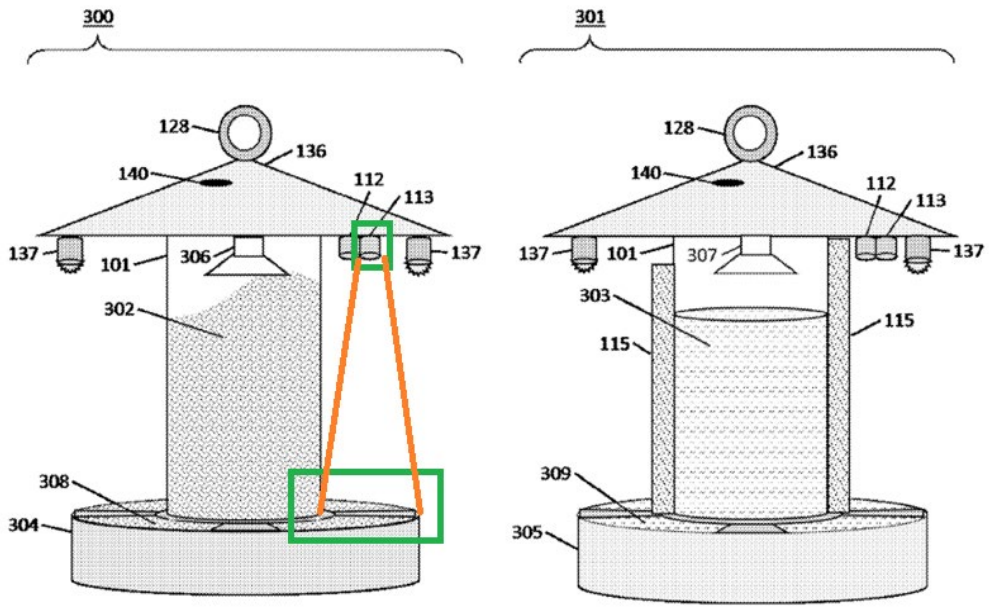


FIG. 3A

(EX1005 at FIG. 3A) (annotations added).

Furthermore, Bennett discloses an internally mounted camera in the embodiment of FIG. 1A, which shows the camera (image sensor 112) mounted beneath the feed reservoir portion of the device, and facing outward toward the feed ports (129). (EX1001 ¶¶101-103; EX1005 at FIG. 3A). The camera is mounted to the interior at least because it is within a space defined by the bottom and reservoir, which surround it, and because, as shown by the black arrows to the controller, it is coupled to the controller, which means the camera is coupled to an interior element. (*Id.*)

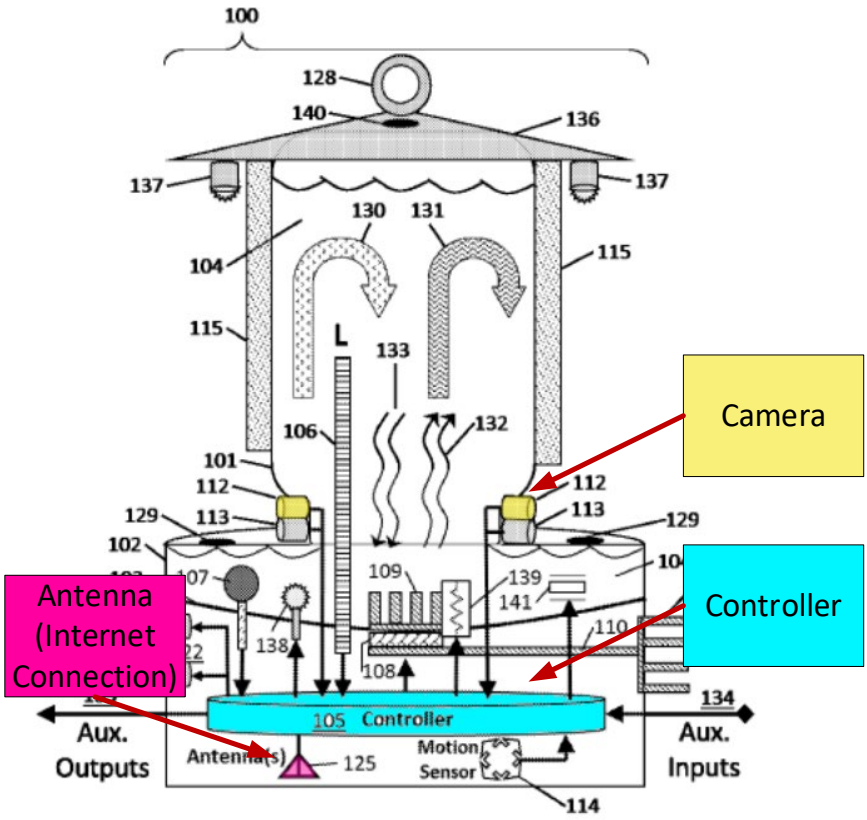


FIG. 1A

(EX1005 at FIG. 1A).

Moreover, it would have been obvious to POSITA to mount the camera internally, either inside the cap or inside the side of the silo portion of the feeder (as shown in FIG. 1A) because POSITA would have known to weatherproof the image sensors 112. (EX1001 ¶¶101-103). A POSITA would have known that by placing the sensors internally looking outward, this would minimize the risk of animals interfering with or damaging the sensors, and therefore would have mounted the sensors, including the camera, internally. (*Id*).

Furthermore, it would have been obvious to POSITA to use a bracket or similar device as the internal portion of the mount for the camera. (*Id*). POSITA would have seen the wire connections of Bennett and would have known those require support, as does the camera itself, to keep the camera stable and to keep the wires attached. (*Id*). Therefore, POSITA would have been motivated to secure the camera and/or wires with a support bracket mounted on the inside of the feeder housing, wherein the support bracket would have held the wires and camera in place. (*Id*).

POSITA would have reasonably expected success because it is easy to mount objects in the manner described using standard brackets and fasteners (e.g., screws). (*Id*). In addition, mounting using an internally situated element is a known technique and POSITA would have reasonably expected success using an internal mounting element because this was a simple and straightforward way to mount objects. (*Id*).

7. Claim 1(f)

1(f)	e. the computer located within the feeder housing;

Bennett discloses a computer located within the feeder housing. Specifically, Bennett discloses a controller located in the sustenance tray. "FIG. 4B depicts the solid sustenance dispensing tray 401 that attached to the station 400. It [the tray]

comprises the controller 105 as discussed in the description of FIG. 2C, and the same sensors and electrical loads discussed in the description of FIG. 3C, and reproduced schematically in FIG. 4B for convenient reference." (EX1001 ¶¶104-105; EX1005 ¶82).

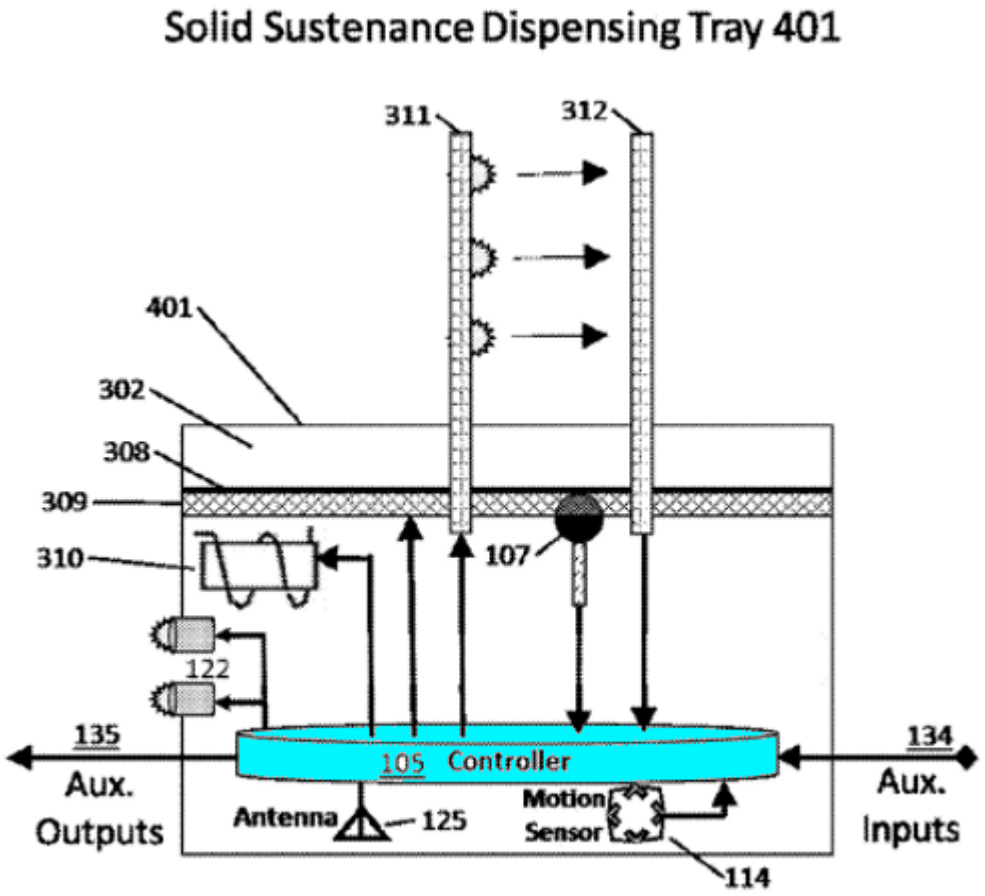


FIG. 4B

(EX1005 at FIG. 4B).

The controller is a computer because it can execute software: "data from the sensors such as, but not limited to imaging 112, audio 113, or motion 114 sensors, may be processed by software executing in the controller 105 to determine the

presence of an animal at the station and apply power to the UV emitters 138 only when no animals are present." (EX1005 ¶47).

8. Claim 1(g)

1(g)	f. an internal power source; and

Bennett discloses an internal power source. Bennett's power management module can be connected to a battery. (EX1001 ¶¶106-107; EX1005 ¶58). "The power management module 203 receives power from… a connection to a stored 217 power source (e.g., battery, supercapacitor), and conditions and transforms it to supply the voltages and currents required by the modules comprising the controller 105. With the variety of power management integrated circuits currently marketed… that can operate from input voltages ranging from 2.4 to 28 volts at currents from 2 to 12 amperes, the designer of a given embodiment may choose from a variety of power converters for supplying generated 216 power." (*Id*).

Furthermore, it would have been obvious to POSITA to place the battery inside the feeder housing to weatherproof the battery and to protect the battery from external forces. (EX1001 ¶¶106-107).

9. Claim 1(h)

1(h)	g. a WiFi adapter located within the feeder housing.

Bennett discloses a WiFi adapter located within the feeder housing. Bennett's controller is capable of communicating wirelessly using standard protocols, including the 802.11 (WiFi) protocol. "Located in the lower part of feeding tray 102 beneath the sealing barrier 103, the station controller 105… is capable of communicating wirelessly using one or more standard communication protocols such as, but not limited to, 802.11… through the use of one or more antennas 125." (EX1001 ¶108; EX1005 ¶51).

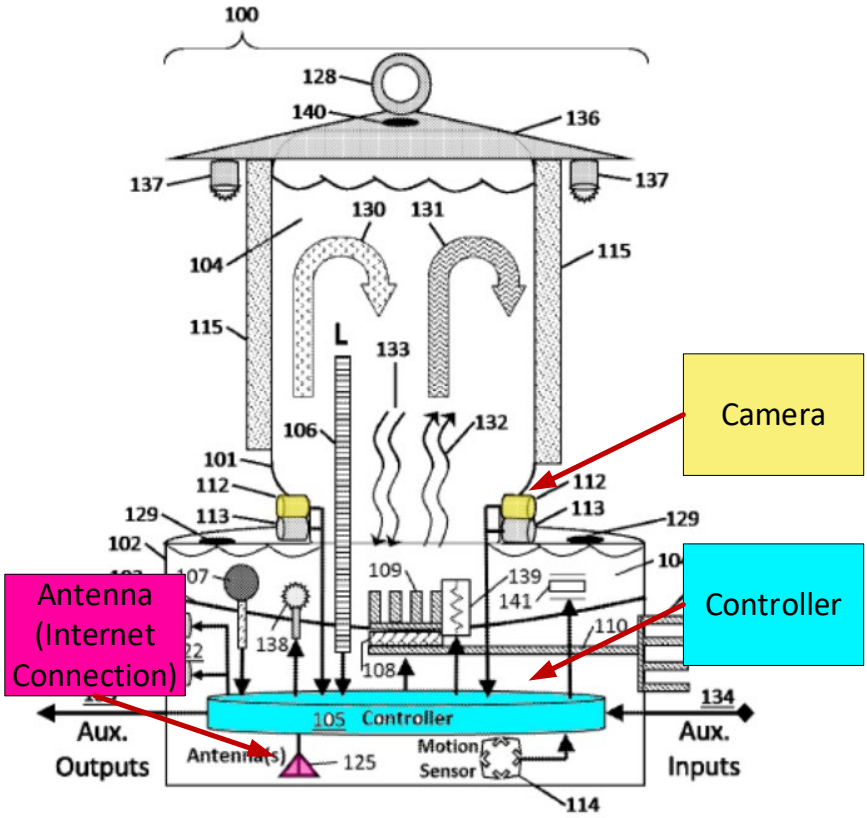


FIG. 1A

(EX1005 at FIG. 1A).

B. Claim 3

3	The self-contained bird feeder of claim 1 further comprising a feed compartment disposed in the feeder housing and a feed compartment separator disposed in the feed compartment, whereby feed is fed by gravity from the feed compartment through the feeder housing, to the feeder bottom, and then to the feed port.

Bennett discloses a feed compartment disposed in the feeder housing, wherein the feed compartment includes a feed compartment separator and wherein the feed is fed by gravity from the feed compartment through the feeder housing to the feeder bottom, and then to a feed port. (EX1001 ¶¶109-111; EX1005 ¶73). The feed compartment is the storage vessel (e.g., storage vessel 101 of station 400) that holds the feed that is dispensed to the dispensing tray/feeding tray. The sealing barrier is the feed compartment separator. As shown in the figures, the feed in Bennett is gravity fed to the bottom and then to the feed port. (*Id*).

Bennett discloses that the feeding tray comprising two main chambers, an upper section and a lower section separated by a sealing barrier to prevent the contents of the upper chamber from entering the lower chamber. (EX1001 ¶¶109-111; EX1005 ¶41). "As further illustrated in FIG. 1A, the feeding tray 102 comprises two main chambers, upper and lower, divided substantially horizontally by a sealing barrier 103 that prevents the liquid 104 in the upper chamber from

escaping into the lower chamber containing the station controller 105 and other electrical components and associated circuitry." (*Id*).

Bennett includes port openings for birds to access food. "The storage vessel 101 of station 400 stores solid sustenance 302… and attached to the bottom of storage vessel 101 is the sustenance dispensing tray 401 into which solid sustenance 302 from the storage vessel 101 is dispensed. The feeding tray 401 is removably attached to the storage vessel 101… to facilitate cleaning and solid sustenance 302 replacement, and has one or more openings 308 positioned around the top surface from which the animals access the sustenance 302 for consumption." (EX1001 ¶¶109-111; EX1005 ¶¶73, 81).

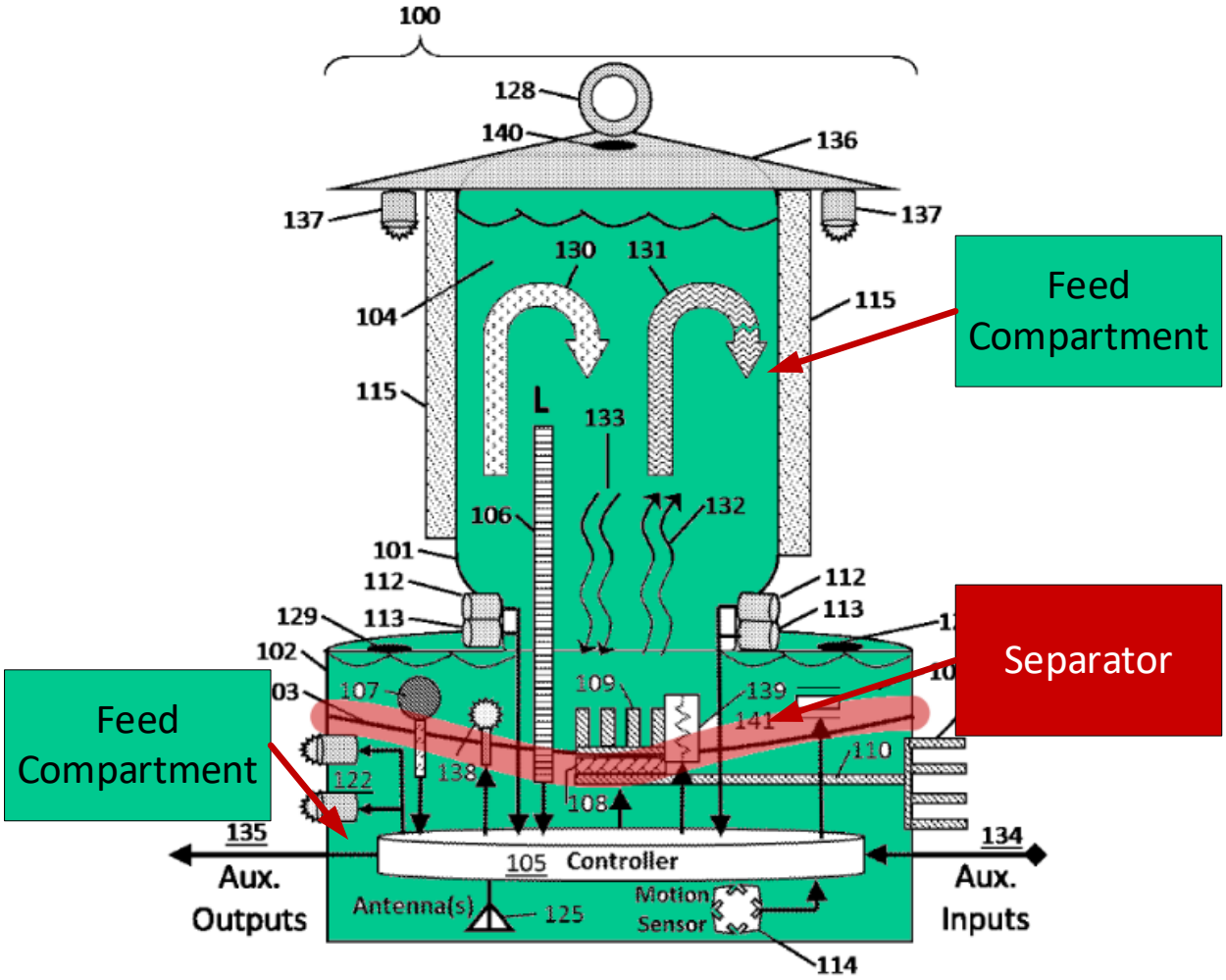


FIG. 1A

(EX1005 at FIG. 1A).

IX. Ground 1A | Bennett in view of Rofougaran

A. Claim 2

2	The self-contained bird feeder of claim 1 wherein the WiFi adapter is a WiFi dongle.

Bennett in view of Rofougaran discloses a WiFi dongle.

Rofougaran discloses a USB (WiFi) dongle configured to facilitate wireless communications using the 802.11 (WiFi) standard. (EX1009 ¶¶76, 107, 112). It would have been obvious to use the WiFi dongle of Rofougaran as the WiFi adapter of Bennett because of the many well-known advantages that USB offered prior to the priority date of the '242 Patent, including a single connector type to connect any PC peripheral, hot plug support, low-cost solution for both system and peripheral implementations, enhanced performance capability, support for legacy hardware and software, low power implementation, and so forth. (EX1001 ¶¶112-117).

Furthermore, the use of USB WiFi dongles was a known technique for enabling WiFi connectivity and its use yields a predictable result (enabling WiFi connectivity). (*Id*). Thus, it would have been obvious to a POSITA to use a WiFi dongle, and POSITA would have reasonably expected success, because using WiFi dongles with USB connectors was a well-known technique for enabling WiFi, and because POSITA would have been using the WiFi dongle for its intended purpose (enabling WiFi). (*Id*).

Likewise, the use of a USB WiFi dongle would have been obvious to try because there are a finite number of potential types of WiFi adapters to use, and a USB dongle was a well-known type of WiFi adapter. POSITA would have

reasonably expected success because POSITA would have used the WiFi dongle for its intended purpose of enabling WiFi. (*Id*).

Likewise, use of a WiFi dongle in lieu of a different type of WiFi adapter is merely the simple substitution of one known element (from the class of WiFi adapters) for another known element (from the class of WiFi dongle adapters) to obtain a predictable result (access to WiFi). (*Id*).

Therefore, there would have been a reasonable expectation of success using a USB WiFi dongle because USB WiFi dongles are well-known, well-understood, and easy for POSITA to implement. (*Id*).

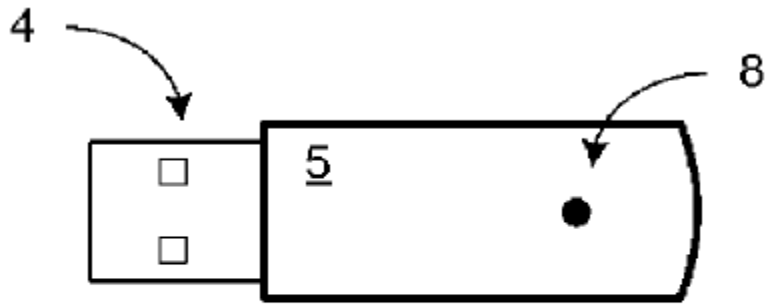


FIG. 3

(EX1009 at FIG. 3).

X. Ground 1B | Bennett in view of Bevan and Raspberry Pi 2 Model B

A. Claim 4

4	The self-contained bird feeder of claim 1 wherein the computer comprises: a processor; a display connector; a multi-media interface; an audio/video jack; and an ethernet socket.

Bennett discloses a processor because the controller of Bennett is capable of executing software: "data from sensors such as, but not limited to imaging 112, audio 113, or motion 114 sensors may be processed by software executing on the controller 105 to determine the presence of an animal and the station and to apply power to the UV emitters 138 only when no animals are present." (EX1001 ¶¶118-126; EX1005 ¶47). Furthermore, it would have been obvious to use a processor as a controller because processors are capable of executing software of the type described in Bennett. (EX1001 ¶¶118-126).

Furthermore, Bennett in view of Bevan and Raspberry Pi 2 Model B discloses a computer with a processor, display connector, multi-media interface, audio/video jack, and an ethernet socket. (*Id*).

It would have been obvious to use a Raspberry Pi as the controller for the bird feeder because it was well-known to POSITA to use Raspberry Pi devices as controllers for bird feeder camera systems, as taught by Bevan. (EX1001 ¶¶118-126; EX1010 at 5-9). Bevan teaches using a Raspberry Pi as the controller for a wildlife camera that detects motion and takes pictures when birds are present at a bird table (a type of flat bird feeder). (*Id*). It would therefore have been obvious to

POSITA to use a Raspberry Pi to control the capture of images and video of birds when the birds were present at a bird feeder. (*Id*).

Furthermore, as PO admits, Raspberry Pi was publicly available for handling wireless connectivity and camera control as part of the Raspbian Linux Distribution. (*Id*.; EX1003 at col. 3:27-39). POSITA would have been aware of the Raspbian Linux Distribution and the convenient functionality the distribution provided, and would therefore have been further motivated to use a Raspberry Pi device as the controller for the bird feeder to take advantage of the Raspbian Linux Distribution. (EX1001 ¶¶118-126). Among other advantages, POSITA would have understood the Raspbian Linux Distribution to provide pre-written and debugged software that would at least save POSITA time when implementing the Raspberry Pi 2 Model B as the controller for the bird feeder. (*Id*).

The Raspberry Pi 2 Model B was available prior to the priority date of the ‘242 Patent. This Raspberry Pi model includes an HDMI port, an ethernet port, a micro-USB port/socket, a standard USB port, and a combined 3.5mm audio jack with composite video. (*Id*.; EX1010 at 12). The Model B also included a Camera Serial Interface (CSI) and Display Serial Interface (DSI). (*Id*). In short, the Raspberry Pi 2 Model B includes all of the elements of claim 4 and actually appears to be the source of those elements given the similarities between the figure

of the Raspberry Pi in the instant patent and the shape and layout of the Raspberry Pi 2 Model B board. (*Id*).

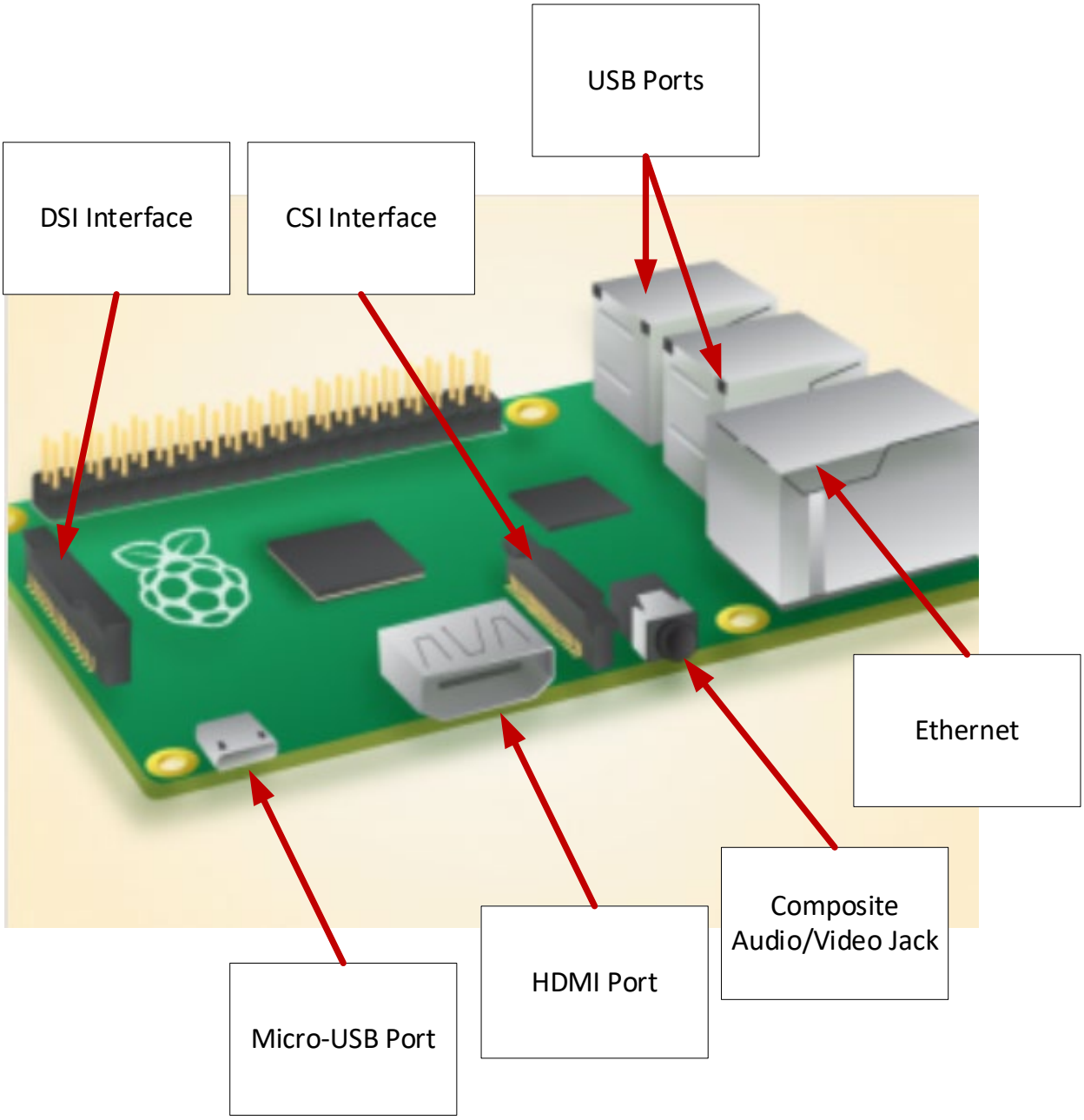
Because the Raspberry Pi 2 Model B provides connections for all of the different types of sensors used in Bennett, and because it was well-known and well-understood to use Raspberry Pi devices to control cameras, such as those in Bennett, it would have been obvious to POSITA to use the Raspberry Pi 2 Model B as the microcontroller board in Bennett. (*Id*). Accordingly, claim 4 would have been obvious in its entirety.

POSITA would have reasonably expected success using the Raspberry Pi 2 Model B because Bevan teaches how to capture and transmit images of birds using a Raspberry Pi and a camera, indicating that the desired functionality was possible and readily achievable. (*Id*).

Furthermore, using a Raspberry Pi device as a driver for a camera was a known technique, as indicated in Bevan, that yielded predictable results (controlling the camera system), and would do so in this context as well. (*Id*).

Likewise, use of a Raspberry Pi 2 Model B in lieu of a different type of controller is merely the simple substitution of one known element (a controller) for another known element (a Raspberry Pi 2 Model B, a type of controller) to obtain a predictable result (control over the hardware elements of the system as a whole). (*Id*).

Finally, it would be obvious to try the Raspberry Pi 2 Model B because there were a finite number of control circuits and microcontrollers capable of performing the functions described in Bennett that are performed by the controller. (*Id*). The Raspberry Pi 2 Model B was one such device and using it as the controller would be using it for one of its intended purposes (as a controller for simple electronic devices). POSITA would reasonably expect this to result in a suitable controller, especially in view of the fact that it was known to use Raspberry Pi devices as controllers for bird feeder cameras. (*Id*).



(EX1010 at 12).

B. Claim 5

5	The self-contained bird feeder of claim 1 wherein the computer comprises a micro USB socket and a USB port.

The combination of Bennett with Bevan and the Raspberry Pi 2 Model B includes the features of the Raspberry Pi 2 Model B, including a micro-USB socket and a USB port. (EX1001 ¶127; EX1010 at 12). Thus, the combination of claim 4, which is motivated for the same reasons as described in claim 4, discloses all elements of claim 5. (*Id*).

C. Claim 6

6	The self-contained bird feeder of claim 4 wherein the multi-media interface comprises an HDMI port.

The combination of Bennett with Bevan and the Raspberry Pi 2 Model B includes the features of the Raspberry Pi 2 Model B, including an HDMI port. (EX1001 ¶128; EX1010 at 12). Thus, the combination of claim 4, which is motivated for the same reasons as described in claim 4, discloses all elements of claim 6. (*Id*).

XI. Ground 2 | Bonham

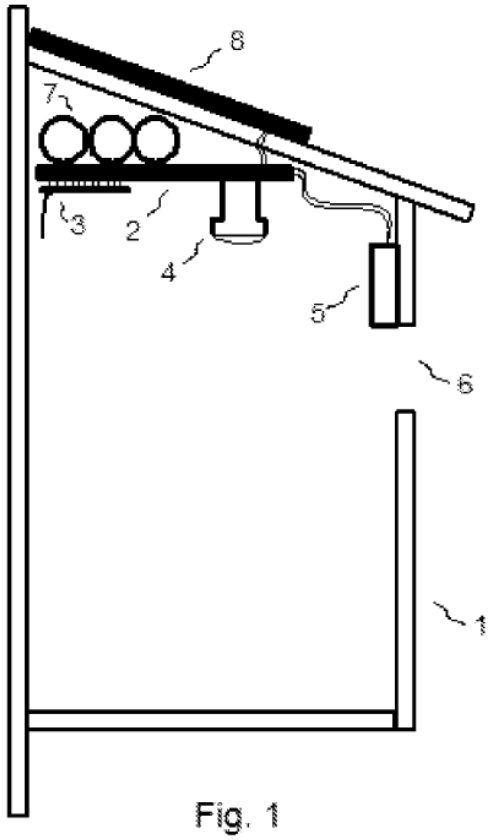


Fig. 1

(EX1006 at FIG. 1).

A. Claim 1

1. Claim 1(pre)

1(pre)	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising:

Bonham discloses a self-contained bird house configured to provide detailed images over a wireless network. (EX1001 ¶ 129; EX1006 ¶¶12-14). Bonham discloses a self-contained bird house because all components—cameras, batteries,

and controller—are part of Bonham and are not OEM or stand-alone components. (*Id*).

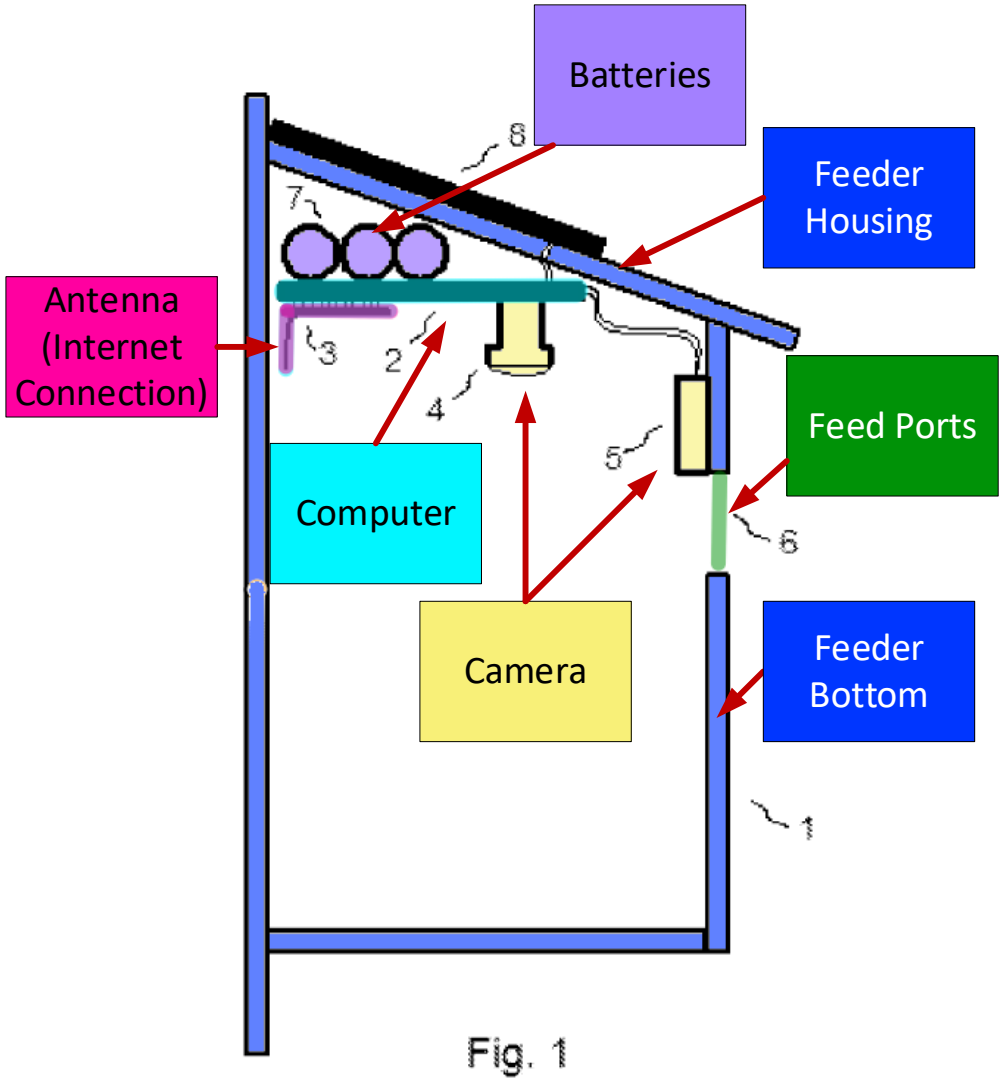


Fig. 1

2. Claim 1(a)

1(a)	a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising:

The bird feeder of Bonham comprises a built in camera, computer, and internet connection. (EX1001 ¶¶130-132; EX1006 ¶¶ 12-14).

The bird house of Bonham is the bird feeder. As Bonham explains, it is possible to use cameras inside bird houses to monitor feeding rates, and this has been known since at least 2010. (EX1001 ¶¶130-132; EX1006 ¶6). Bonham includes an "internet-connected computer in the form of the microcontroller (2) where the data can be uploaded and added to centralized databases. (EX1001 ¶¶130-132; EX1006 ¶13-14). The camera is the image sensor built into the bird house. (*Id*).

Furthermore, it would have been obvious to POSITA to include bird feed in the bird house because bird feed could be easily placed in the feeder bottom and on the base of the bird house, which would attract birds to the bird house and allow the bird house to function as a feeder. (*Id*). POSITA would have a reasonable expectation of success because placing bird food in a bird house is not complicated and is easy to accomplish. (*Id*). Furthermore, Bonham mentions that it is possible to track feeding rates of birds using the camera and motion detector, which would be possible if food were inside the bird house. (EX1001 ¶¶130-132; EX1006 ¶6).

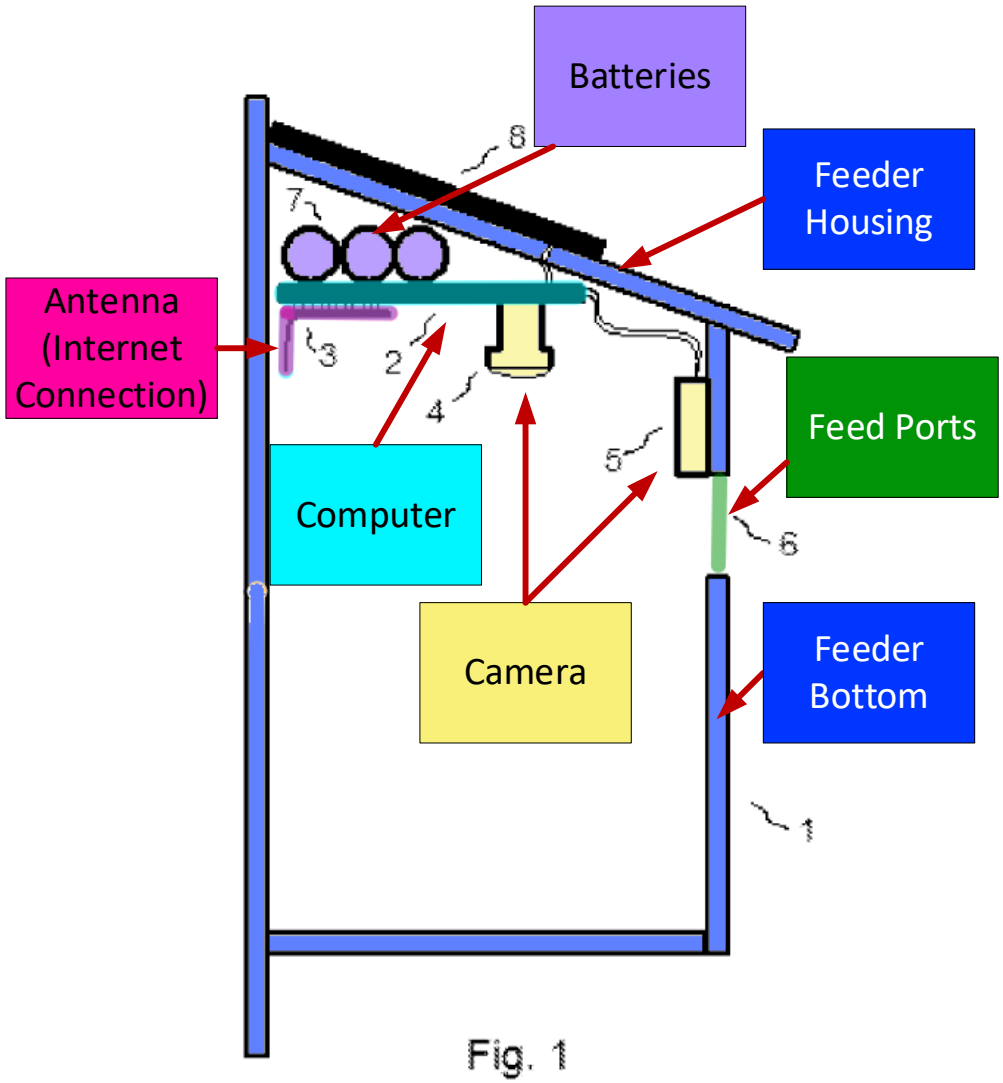


Fig. 1

3. Claim 1(b)

1(b)	a. a feeder housing;

Bonham discloses a feeder housing, which is the housing of the bird house. (EX1001 ¶133; EX1006 ¶7-9, 13-14).

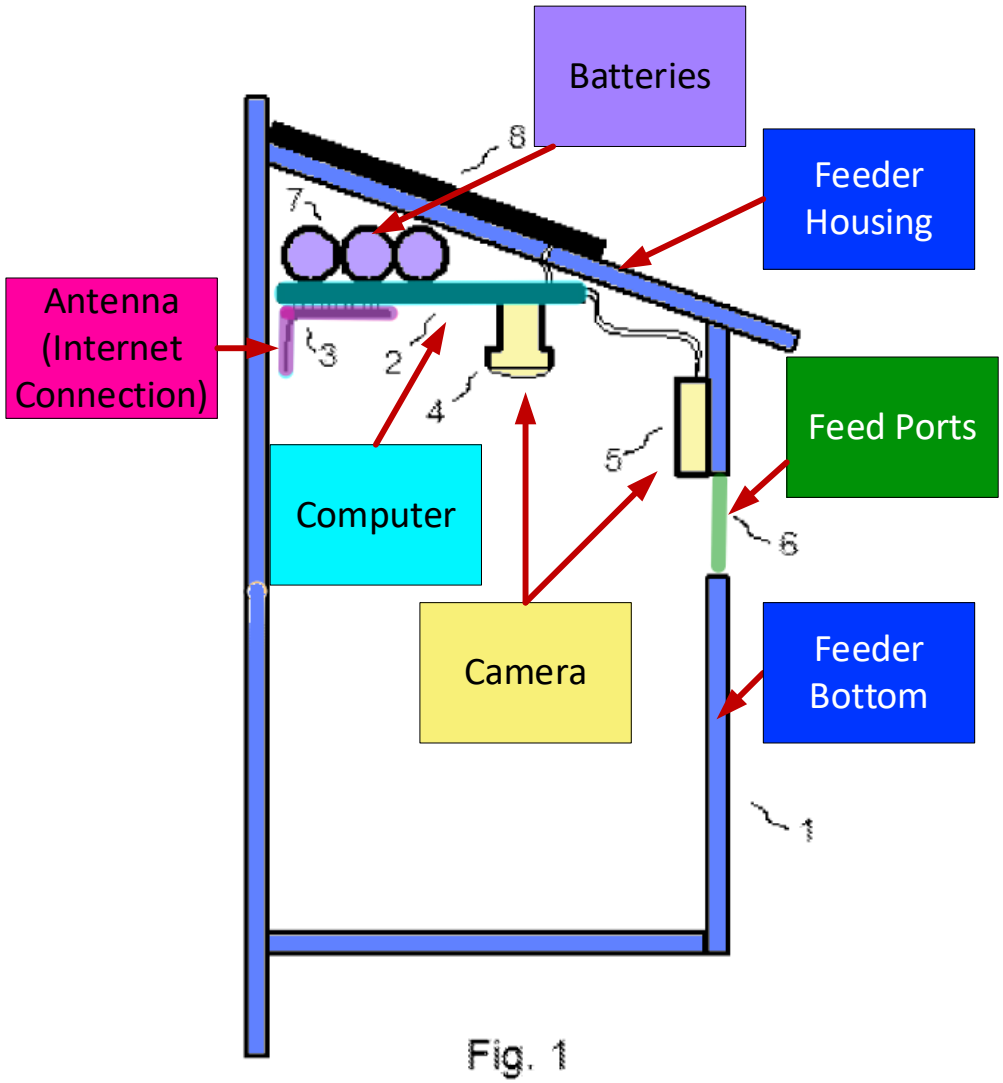


Fig. 1

(EX1006 at FIG. 1).

4. Claim 1(c)

1(c)	b. a feeder bottom;

Bonham discloses a feeder bottom, which is the bottom and sides of the bird house. (EX1001 ¶134; EX1006 ¶¶13-14).

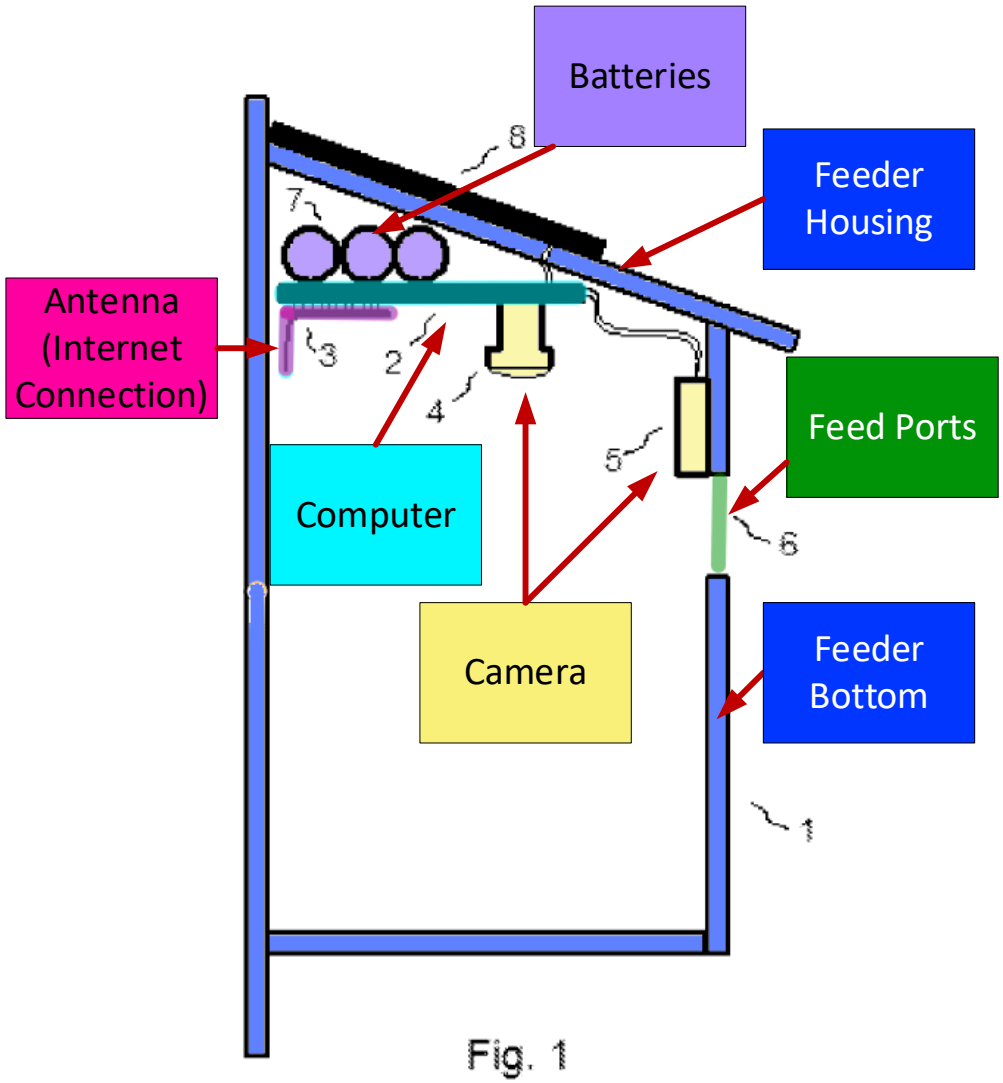


Fig. 1

5. Claim 1(d)

1(d)	c. a feed port disposed on the feeder bottom;

Bonham discloses a feed port which is the entrance hole (6) of the bird house. (EX1001 ¶¶135-136; EX1006 ¶¶13-14). When the bird house is filled with food, a bird can perch on the lip of the entrance hole to access the food or can pass

through the entrance hole into the bird house to access food. (*Id*). Either way, the bird accesses food through the circular entrance hole.

It would have been obvious to POSITA to place the feed port at a lower position as well. (*Id*). Although the feed port, as illustrated in FIG. 1, is defined by the feeder bottom, it would also have been obvious to move the feed port closer to the floor of Bonham. (*Id*). It would also have been obvious to POSITA to move the feed port down because the location of the feed port is obvious to try as one of a finite number of possible positions of the feed port, and POSITA would have reasonably expected success because moving the feed port is as simple as drilling through the wood of the bird feeder at a lower location. (*Id*). It would also have been obvious to POSITA to move the feed port because moving the feed port location is simple substitution of one location for another, and POSITA would reasonably expect success because moving the feed port is as simple as drilling through the wood at the substitute location. (*Id*).

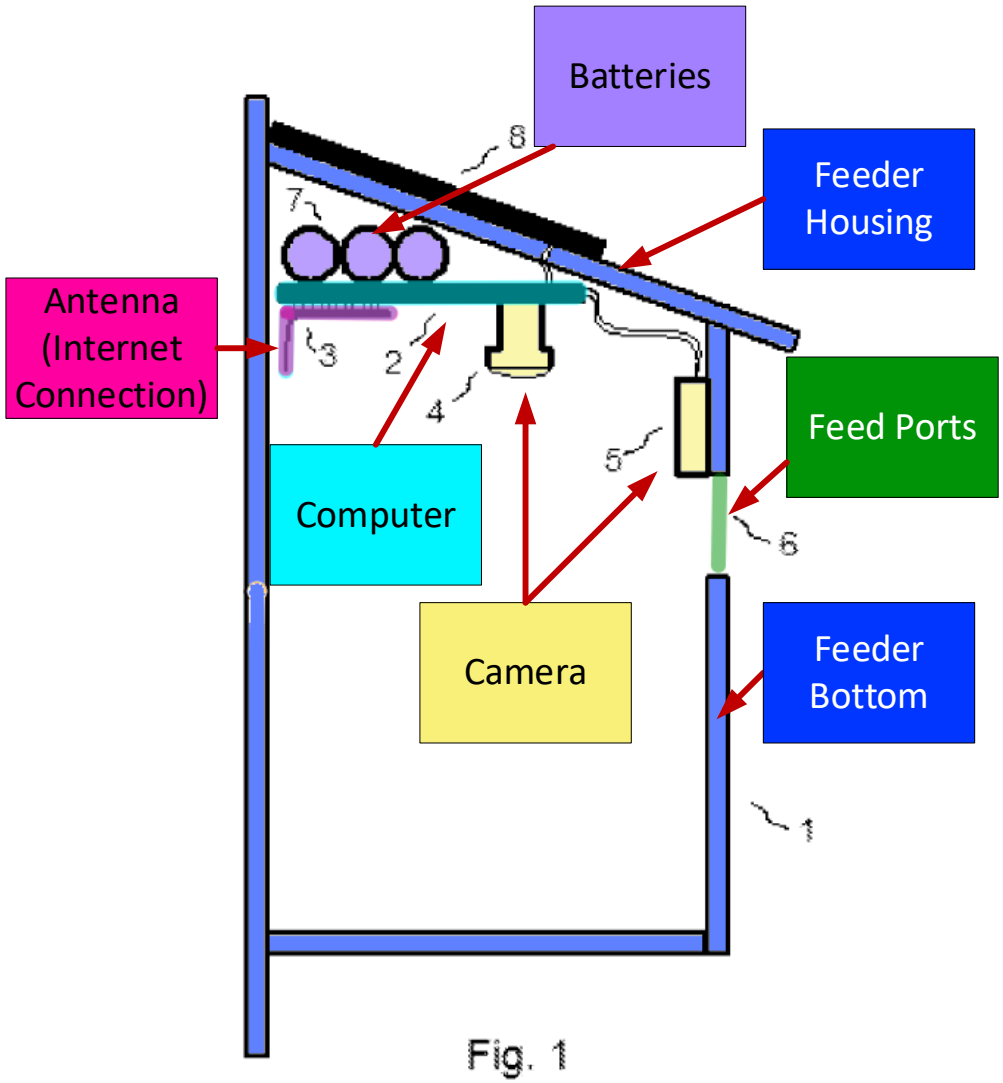


Fig. 1

(EX1006 at FIG. 1).

6. Claim 1(e)

1(e)	d. the camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds;

Bonham discloses an internally mounted camera aligned with the feed port to observe feeding birds. Specifically, the internally mounted camera is the image

sensor and lens (4) that is mounted inside and to the ceiling of the bird house. (EX1001 ¶137; EX1006 ¶¶13-14). The sensor "provides for still pictures or video to be taken of activity inside the bird house." (*Id*).

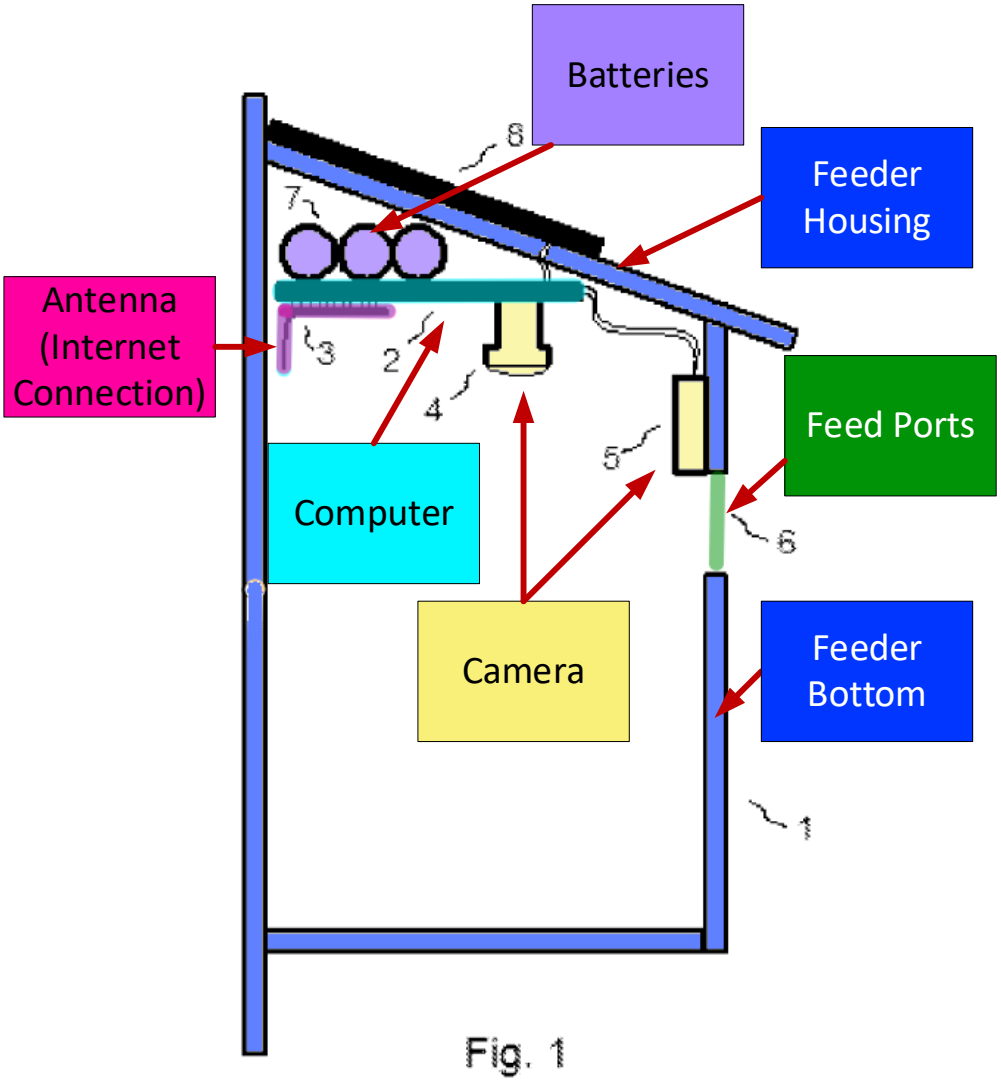


Fig. 1

(EX1006 at FIG. 1).

7. Claim 1(f)

1(f)	e. the computer located within the feeder housing;

Bonham discloses a computer ("controller") located in the feeder housing. The computer is the electronic circuit board (2) that includes "a central processing unit [CPU], memory, clock, and embedded software that controls the other elements of the invention." (EX1001 ¶138; EX1006 ¶¶13-14). These are the essential elements of a computer, thus Bonham discloses a computer. (*Id*). The electronic circuit board (the computer) is "fitted and installed inside of the bird-house." (*Id*).

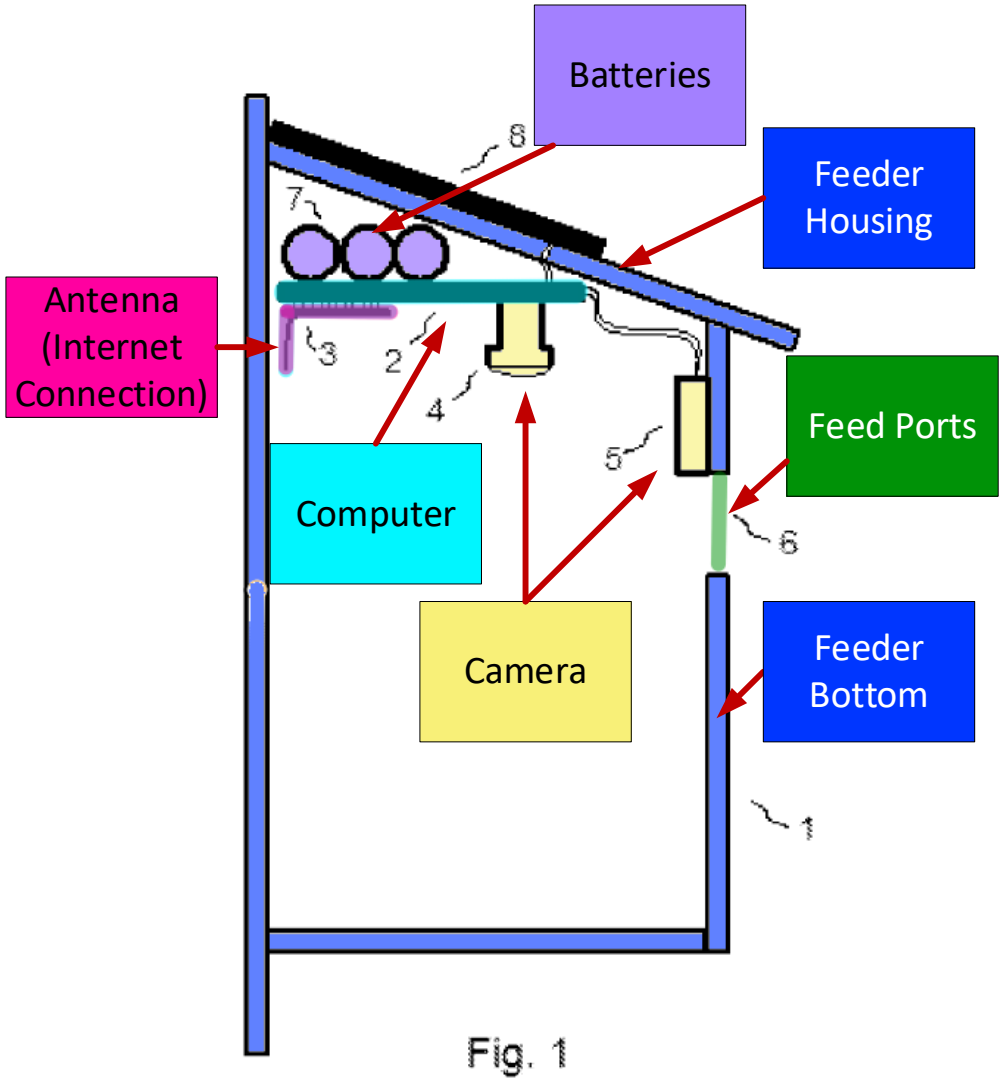


Fig. 1

(EX1006 at FIG. 1)

8. Claim 1(g)

1(g)	f. an internal power source; and

Bonham discloses an internal power source. The internal power source is a set of rechargeable batteries (7) that are "fitted and installed inside the bird-house." (EX1001 ¶139; EX1006 ¶¶13-14).

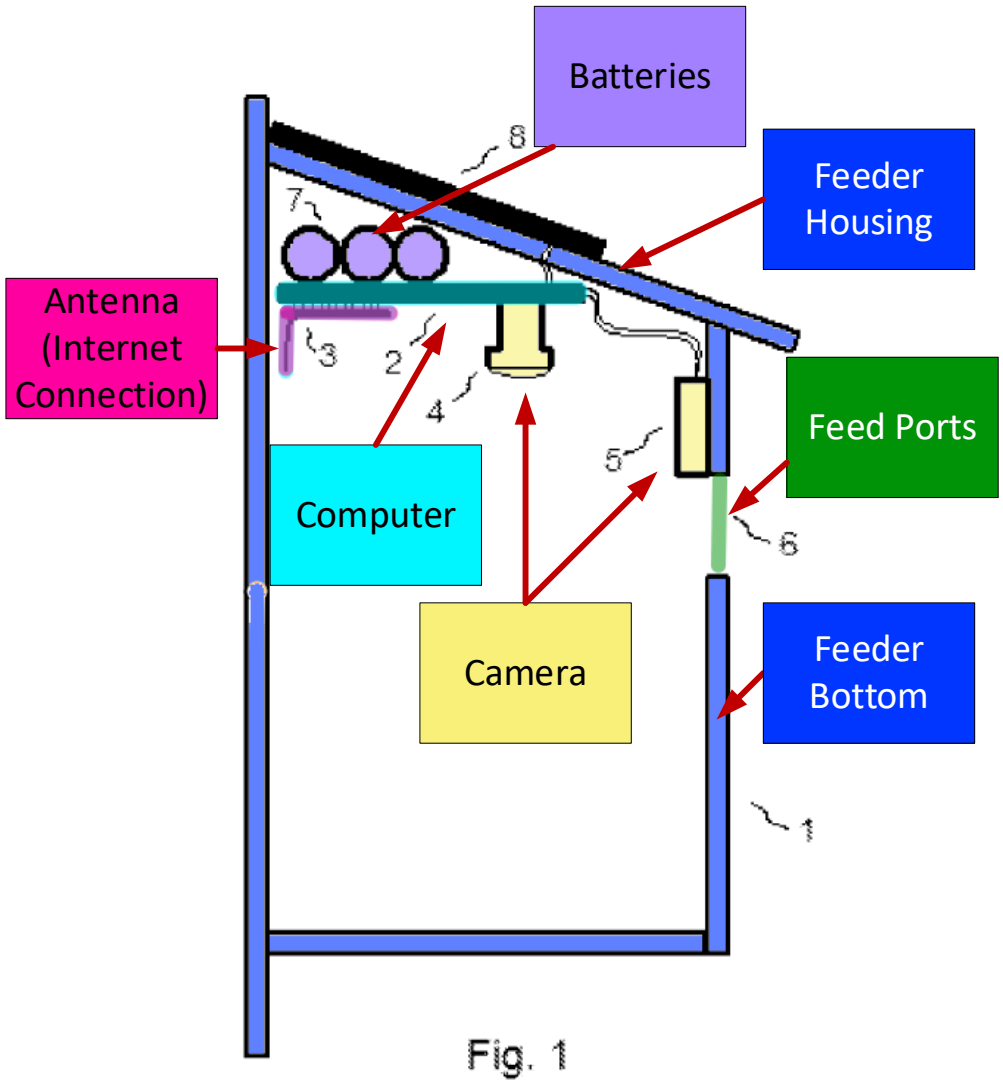


Fig. 1

(EX1006 at FIG. 1).

9. Claim 1(h)

1(h)	g. a WiFi adapter located within the feeder housing.

Bonham discloses a WiFi adapter located within the feeder housing. Specifically, Bonham discloses a two-way wireless transceiver (3) that is "fitted and installed inside the bird-house." (EX1001 ¶140; EX1006 ¶¶13-14). This transceiver must be internet-connected because Bonham includes an internet-connected computer. (*Id*). Internet connectivity for a wireless device can be provided by the 802.11 (WiFi) protocol. It would therefore have been obvious to POSITA to use WiFi because WiFi is a well-understood, easy to implement protocol for internet connectivity with substantial third-party support. (*Id*). Therefore, POSITA would have a reasonable expectation of success using WiFi as the protocol for the wireless transceiver. (*Id*).

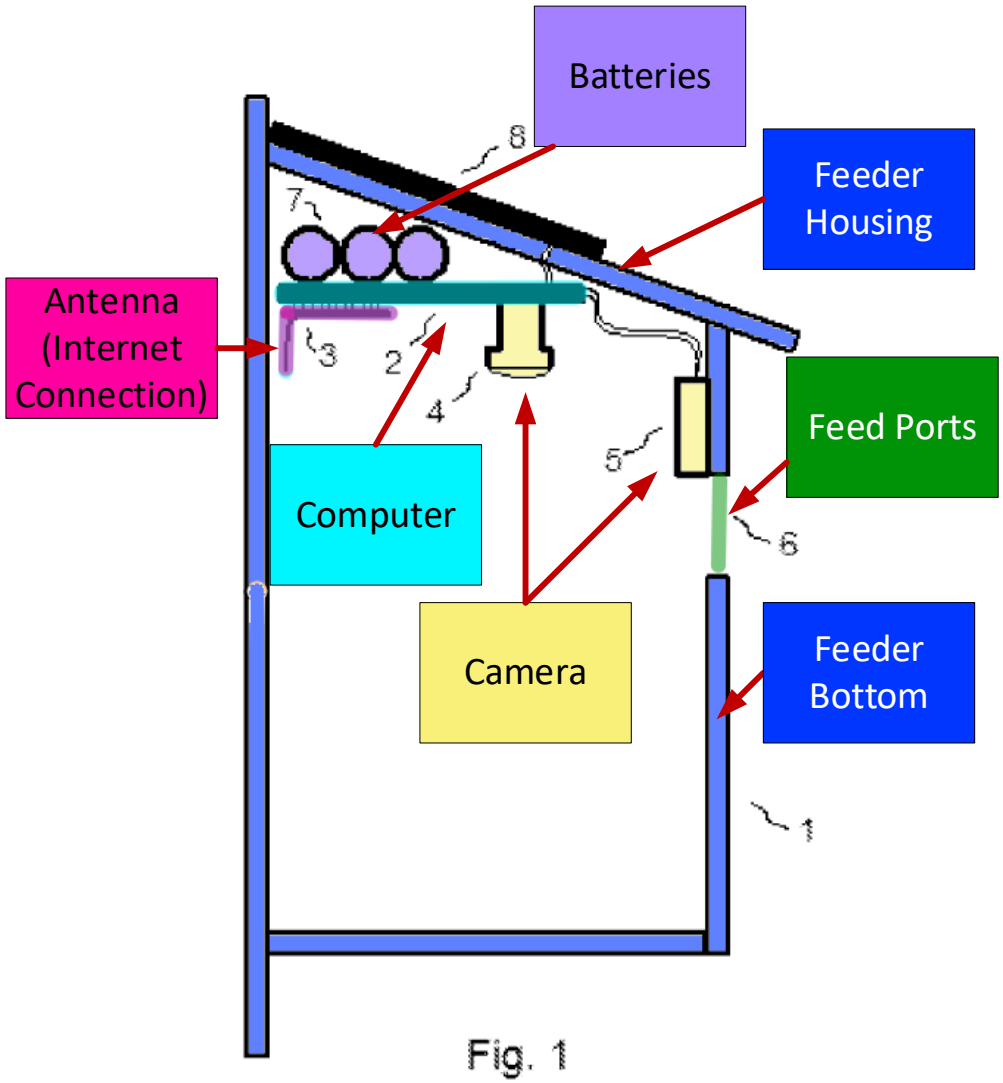


Fig. 1

(EX1006 at FIG. 1).

XII. Ground 2A | Bonham in view of Rofougaran

A. Claim 2

2	The self-contained bird feeder of claim 1 wherein the WiFi adapter is a WiFi dongle.

Bonham in view of Rofougaran discloses a Wifi dongle.

Rofougaran discloses a USB (WiFi) dongle configured to facilitate wireless communications using the 802.11 (WiFi) standard. (EX1009 ¶¶76, 107, 112). It would have been obvious to use the WiFi dongle of Rofougaran as the WiFi adapter of the controller of claim 1 because of the many well-known advantages that USB offered prior to the priority date of the '242 Patent, including a single connector type to connect any PC peripheral, hot plug support, low-cost solution for both system and peripheral implementations, enhanced performance capability, support for legacy hardware and software, and low power implementation, and so forth. (EX1001 ¶¶141-146).

Furthermore, the use of USB WiFi dongles was a known technique for enabling WiFi connectivity and its use yields a predictable result (enabling WiFi connectivity). (*Id*). Thus, it would have been obvious to POSITA to use a WiFi dongle, and POSITA would have reasonably expected success, because using WiFi dongles with USB connectors was a well-known technique for enabling WiFi, and because POSITA would have been using the WiFi dongle for its intended purpose (enabling WiFi). (*Id*).

Likewise, the use of a USB WiFi dongle would have been obvious to try because there are a finite number of potential types of WiFi adapter to use, and a USB dongle was a well-known type of WiFi adapter. POSITA would have

reasonably expected success because POSITA would have used the WiFi dongle for its intended purpose of enabling WiFi. (*Id*).

Likewise, use of a WiFi dongle in lieu of a different type of WiFi adapter is merely the simple substitution of one known element (from the class of WiFi adapters) for another known element (from the class of WiFi dongle adapters) to obtain a predictable result (access to WiFi). (*Id*).

Therefore, there would have been a reasonable expectation of success using a USB WiFi dongle because USB WiFi dongles are well-known, well-understood, and easy for POSITA to implement. (*Id*).

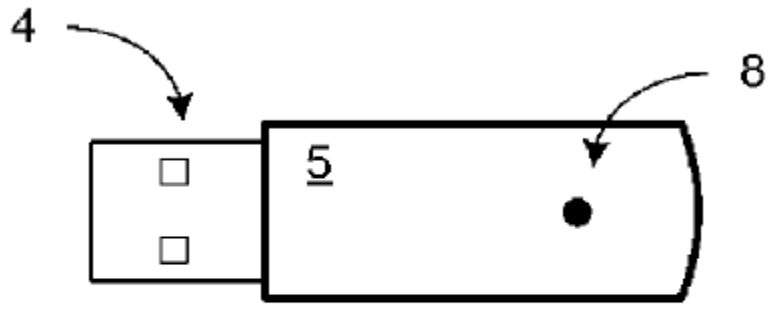


FIG. 3

(EX1009 at FIG. 3).

XIII. Ground 2B | Bonham in view of Bennett and Humphries

A. Claim 3

3	The self-contained bird feeder of claim 1 further comprising a feed compartment disposed in the feeder housing and a feed compartment separator disposed in the feed compartment, whereby feed is fed by gravity from the feed compartment through the feeder housing, to the feeder bottom, and then to the feed port.

Bonham in view of Bennett discloses a feed compartment separator disposed in a feed compartment, whereby feed is gravity fed from the feed compartment to the feeder housing, to the feeder bottom, and then to the feed port.

Bonham discloses a feed compartment (the interior of the bird-house). (EX1006 ¶¶13-14). Bennett discloses a separator, a "sealing barrier," that "prevents the liquid in the upper chamber from escaping into the lower chamber containing the station controller and other electrical components and associated circuitry. The sealing barrier may be curved, flat, other otherwise shaped to accommodate the attachment of sensors and electrical loads at various locations to optimize their respective functions." (EX1005 ¶41).

It would have been obvious to a POSITA to use a barrier as a separator in Bonham, such as the barrier in Bennett, to separate the feed from the electrical components to protect the electrical components, as taught by Bennett. (EX1001 ¶¶147-151). POSITA would have had a reasonable expectation of success because insulating the electronics from the feed is easy to accomplish and well-within

POSITA's skill. (*Id*). Furthermore, POSITA would have known that insulating electronics from the animal feed is a known technique that will yield predictable results (of protecting the electronics). (*Id*).

Bonham and Bennett may be further combined with Humphries to add the hopper of Humphries to the interior of Bennett. (*Id*). POSITA would be motivated to place the hopper of Humphries inside Bonham because, as Humphries explains, "[p]rotecting the food from the weather helps maintain the freshness of the food and helps keep the food dry so that seed is permitted to continually flow from within birdseed reservoir 16 to the bays 36." (EX1008 at col.6:40-44). The combination of Humphries with Bonham and Bennett would be gravity fed because Humphries uses gravity to permit feed to flow from the birdseed reservoir to the bays where the feed can be accessed.

POSITA would have reasonably expected success because adding a hopper to a box-type bird house is easily accomplished given that hoppers are well known and well understood and easy to add to hardware. (EX1001 ¶¶147-151).

XIV. Ground 2C | Bonham in view of Bevan and Raspberry Pi 2 Model B

A. Claim 4

4	The self-contained bird feeder of claim 1 wherein the computer comprises: a processor; a display connector; a multi-media interface; an audio/video jack; and an ethernet socket.

Bonham discloses a computer, which necessarily has a processor, as well as memory, a clock, and embedded software. (EX1001 ¶¶152-159; EX1006 ¶¶13-14). Furthermore, Bonham in view of Bevan and Raspberry Pi 2 Model B discloses a computer that comprises a processor, a display connector, a multi-media interface, an audio/video jack, and an ethernet socket.

It would have been obvious to use a Raspberry Pi as the controller for the bird feeder because it was well-known to POSITA to use Raspberry Pi devices as controllers for bird feeder camera systems, as taught by Bevan. (EX1001 ¶¶152-159; EX1010 at 5-9).

Bevan teaches using a Raspberry Pi as the controller for a wildlife camera that detects motion and takes pictures when birds are present at a bird table (a type of flat bird feeder). (*Id*). It would therefore have been obvious to POSITA to use a Raspberry Pi to control the capture of images and video of birds when the birds were present at a bird feeder. (*Id*).

Furthermore, as the ‘242 Patent admits, Raspberry Pi made publicly available various software for handling wireless connectivity and camera control as part of the Raspbian Linux Distribution. (*Id*.; EX1003 at col. 3:27-39). POSITA would have been aware of the Raspbian Linux Distribution and the convenient functionality the distribution provided, and would therefore have been further motivated to use a Raspberry Pi device as the controller for the bird feeder to take

advantage of the Raspbian Linux Distribution. (EX1001 ¶¶152-159). Among other advantages, POSITA would have understood the Raspbian Linux Distribution to provide pre-written and debugged software that would at least save POSITA time when implementing the Raspberry Pi 2 Model B as the controller for the bird feeder. (*Id*).

The Raspberry Pi 2 Model B was available prior to the priority date of the '242 Patent. This Raspberry Pi model includes an HDMI port, an ethernet port, a micro-USB port/socket, a standard USB port, and a combined 3.5mm audio jack with composite video. (*Id*.; EX1010 at 12). The Model B also included a Camera Serial Interface (CSI) and Display Serial Interface (DSI). (*Id*). In short, the Raspberry Pi 2 Model B includes all of the elements of claim 4 and actually appears to be the source of those elements given the similarities between the figure of the Raspberry Pi in the instant patent and the shape and layout of the Raspberry Pi 2 Model B board. (*Id*).

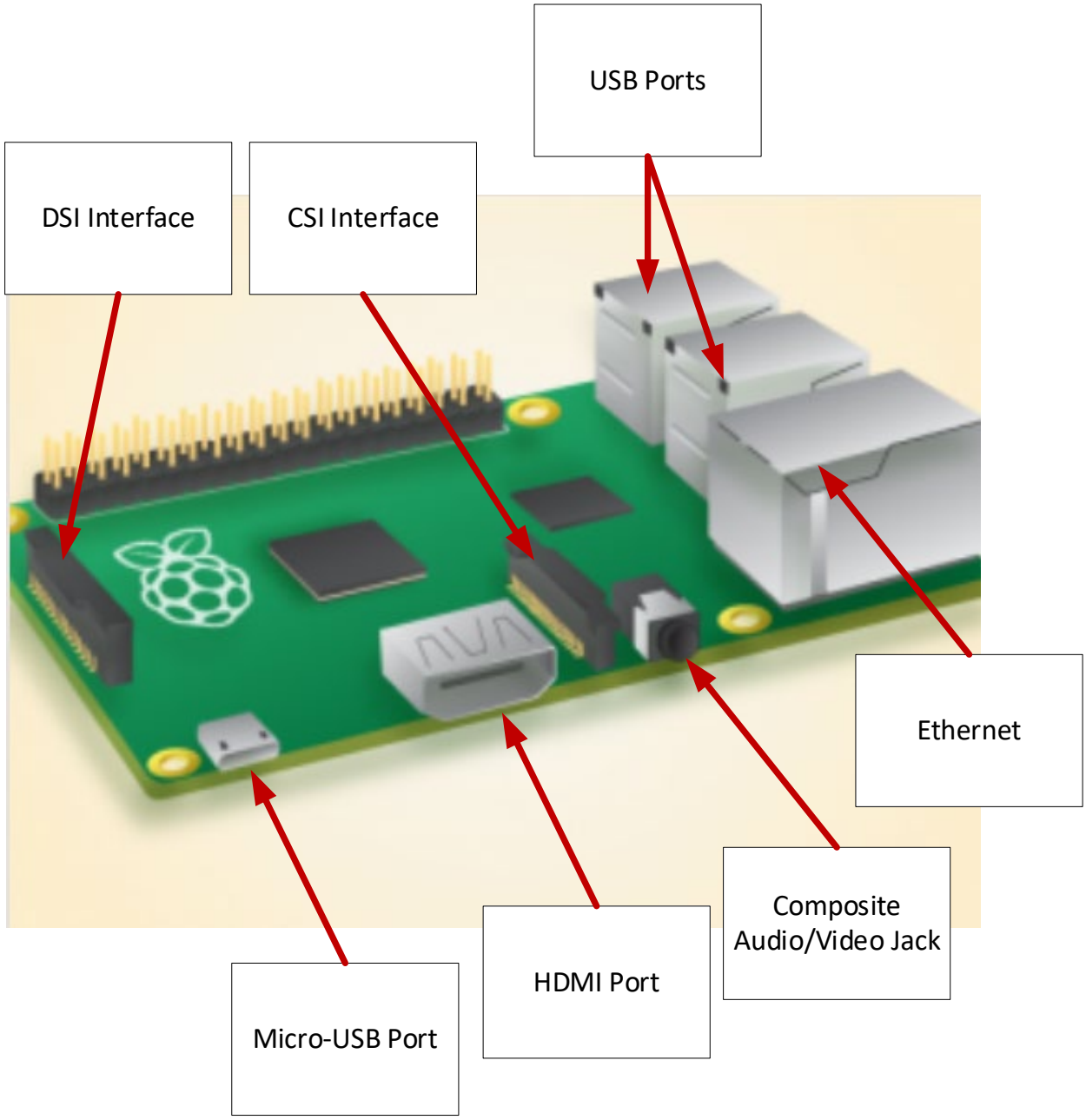
Because the Raspberry Pi 2 Model B provides connections for all of the different types of sensors used in Bonham, and because it was well-known and well-understood to use Raspberry Pi devices to control cameras, such as those in Bonham, it would have been obvious to POSITA to use the Raspberry Pi 2 Model B as the microcontroller board in Bonham. (*Id*). Accordingly, claim 4 would have been obvious in its entirety.

POSITA would have reasonably expected success using the Raspberry Pi 2 Model B because Bevan teaches how to capture and transmit images of birds using a Raspberry Pi and a camera, indicating that the desired functionality was possible and readily achievable. (*Id*).

Furthermore, using a Raspberry Pi device as a driver for a cameras was a known technique, as indicated in Bevan, that yielded predictable results (controlling the camera system), and would do so in this context as well. (*Id*).

Likewise, use of a Raspberry Pi 2 Model B in lieu of a different type of controller is merely the simple substitution of one known element (a controller) for another known element (a Raspberry Pi 2 Model B, a type of controller) to obtain a predictable result (control over the hardware elements of the system as a whole). (*Id*).

Finally, it would be obvious to try the Raspberry Pi 2 Model B because there were a finite number of control circuits and microcontrollers capable of performing the functions described in Bonham that are performed by the controller. (*Id*). The Raspberry Pi 2 Model B was one such device and using it as the controller would be using it for one of its intended purposes (as a controller for simple electronic devices). POSITA would reasonably expect this to result in a suitable controller, especially in view of the fact that it was known to use Raspberry Pi devices as controllers for bird feeder cameras. (*Id*).



(EX1010 at 12).

B. Claim 5

5	The self-contained bird feeder of claim 1 wherein the computer comprises a micro USB socket and a USB port.

The combination of Bonham with Bevan and the Raspberry Pi 2 Model B includes the features of the Raspberry Pi 2 Model B, including a micro-USB socket and a USB port. (EX1001 ¶160; EX1010 at 12). Thus, the combination of claim 4, which is motivated for the same reasons as described in claim 4, discloses all elements of claim 5. (*Id*).

C. Claim 6

6	The self-contained bird feeder of claim 4 wherein the multi-media interface comprises an HDMI port.

The combination of Bonham with Bevan and the Raspberry Pi 2 Model B includes the features of the Raspberry Pi 2 Model B, including an HDMI port. (EX1001 ¶161; EX1010 at 12). Thus, the combination of claim 4, which is motivated for the same reasons as described in claim 4, discloses all elements of claim 6. (*Id*).

XV. Ground 3 | Kin

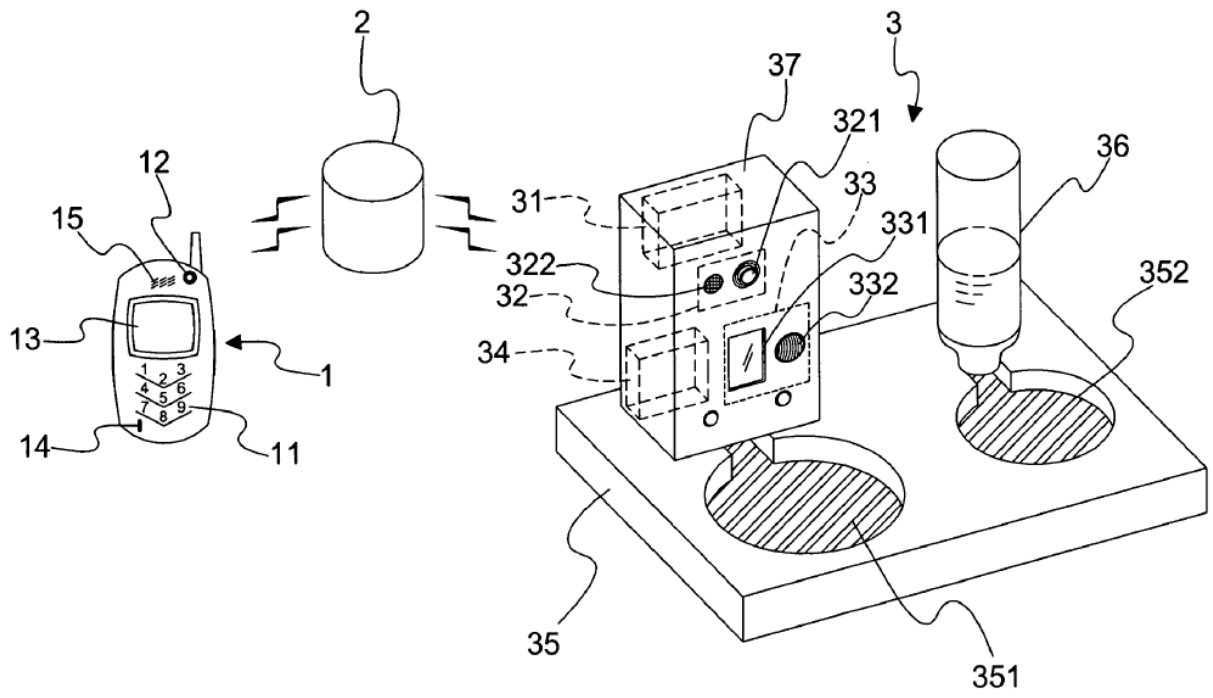


FIG.3

(EX1007 at FIG. 3).

A. Claim 1

1. Claim 1(pre)

1(pre)	A self-contained bird feeder configured to provide detailed images over a wireless network, comprising:

Kin discloses a self-contained bird feeder configured to provide detailed images over a wireless network. The pet feeder of Kin includes a feeding device (3) configured to use an image acquisition device (321) to capture images at a high rate, which may then be transmitted by a processor (31) via a server (2) to an

operating device or devices (1). (EX1001 ¶¶162-163; EX1007 ¶¶15-17). As Kin states, "The feeding device 3 comprises a processor 31, an input unit 32, an output unit 33, a fixed-feed supplier 34, a base 35, and a water supplier 36, where the processor 31, the input unit 32, the output unit 33, and the fixed-feed supplier 34 is [sic] located in the case 37… The operating device 1 and the feeding device 3 are connected to the web server 2 through a wiring connection, or through a wireless connection by using a Bluetooth protocol or a WiFi protocol, so that a control signal from the operating device 1 is received for operating an interactive feeding. Thus, a novel remote interactive feeder is obtained." (EX1007 ¶15).

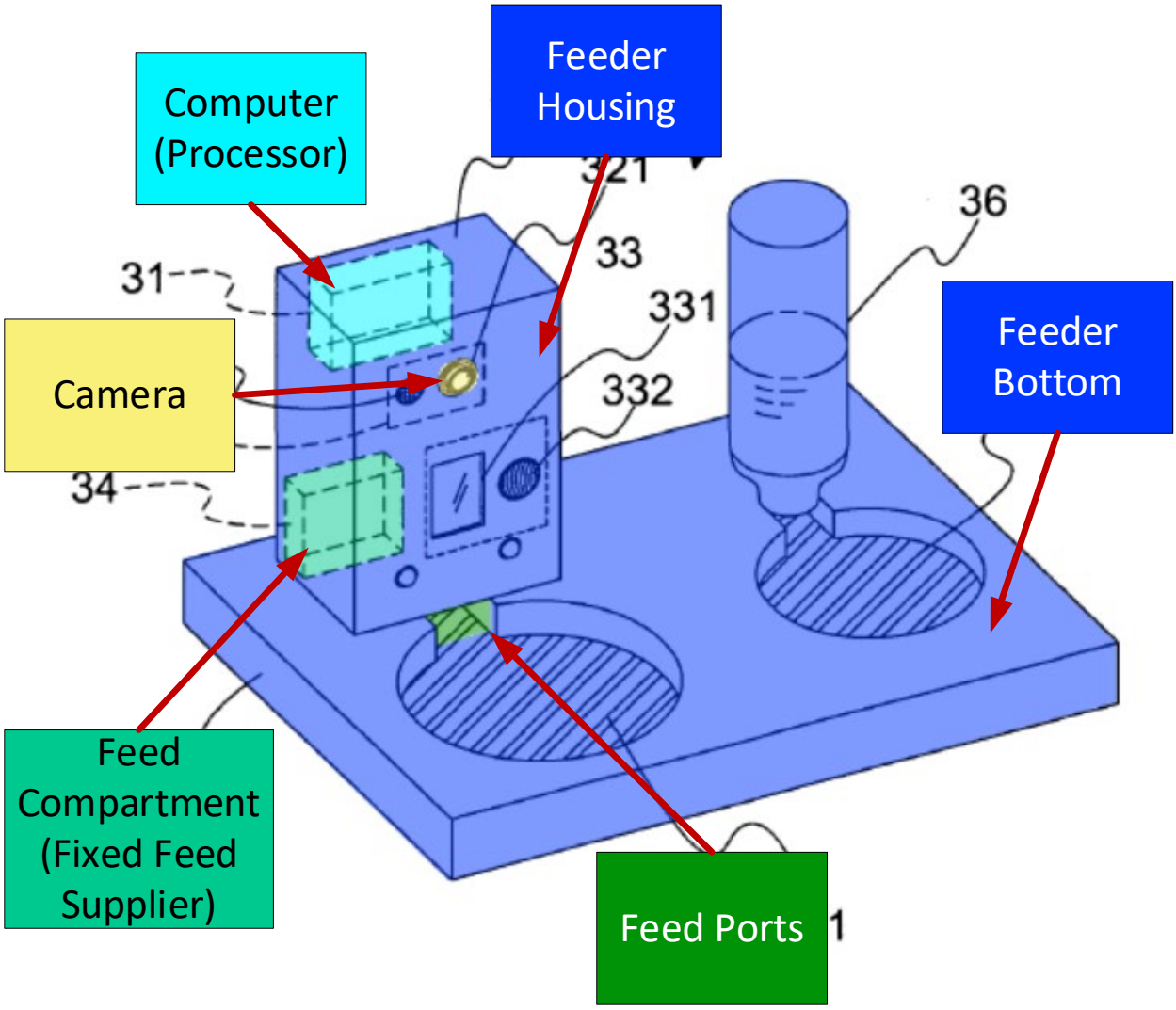

Computer (Processor)
Feeder Housing
Camera
Feeder Bottom
Feed Compartment (Fixed Feed Supplier)
Feed Ports
31
321
33
331
332
34
36
1

FIG.2

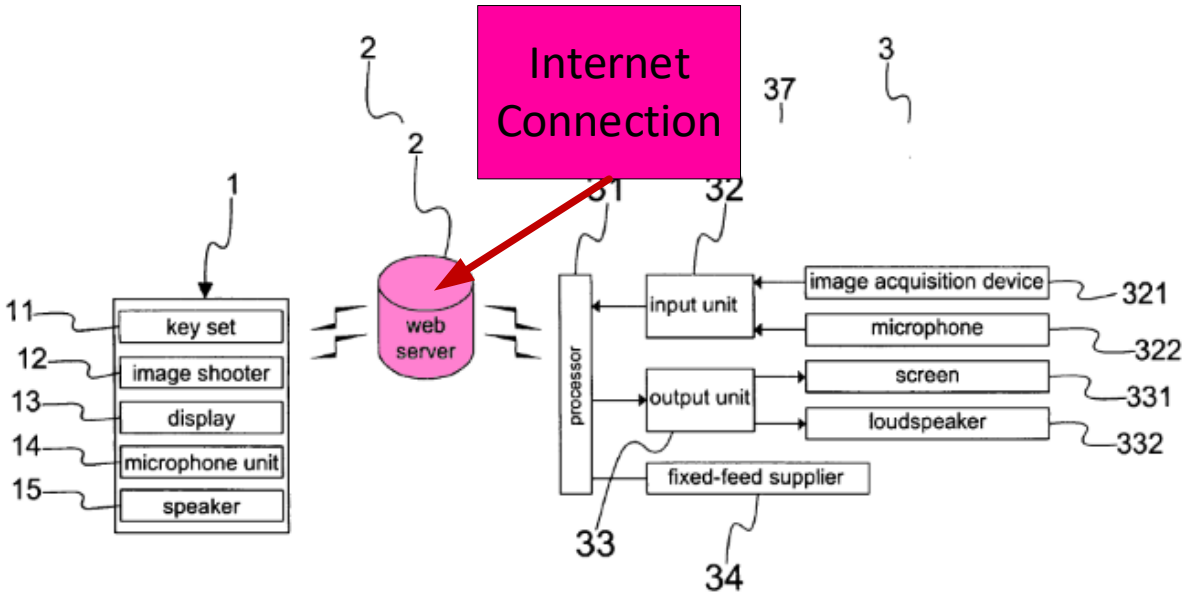


FIG.4

(EX1007 at FIGS. 2, 4).

2. Claim 1(a)

1(a)	a bird feeder with a built in camera, computer, and internet connection, the bird feeder comprising:

Kin discloses a bird feeder with a built in camera, computer, and internet connection. Kin discloses a bird feeder because it is a pet feeder. (EX1001 ¶¶164-168; EX1007 ¶1). Kin covers a feeder that can be used with any particular type of pet. (EX1001 ¶¶164-168; *cf.* EX1007 ¶5). As a result, it would have been obvious to a POSITA to use the feeder to feed a pet bird because POSITA would have known that birds are common pets. *(Id).*

Kin discloses a camera: "a 3G (third-generation) image acquisition device 321 having a high transmission rate; and, an output unit 33 of the feeding device 3 is a set of 3G AV (audio-video) devices including a screen 331 and a loudspeaker 332." (EX1001 ¶¶164-168; EX1007 ¶16).

The processor of Kin is a computer. Kin's processor manages the devices of Kin, including activating the fixed-feed supplier (34) and receives and processes instructions from the operating device (1) and transmits data to the operating device, all indicating that the processor is a computer and functions as a computer. (EX1001 ¶¶164-168; EX1007 ¶¶15-17).

Kin discloses an internet connection because Kin states that "[w]hen using the present invention, a pet raiser dials a number through the key set 11 of the operating device 1 to connect to the web server 2 so that the feeding device 3 is linked. The feeding device 3 sends a photo of the specific environment and a sound of a pet to the display 13 and the speaker 15 of the operating device 1 through the image acquisition device 321 and the microphone 322 of the input unit 32." (EX1007 ¶17). Thus, Kin is using a "web" (e.g., internet) connection. (EX1001 ¶¶164-168).

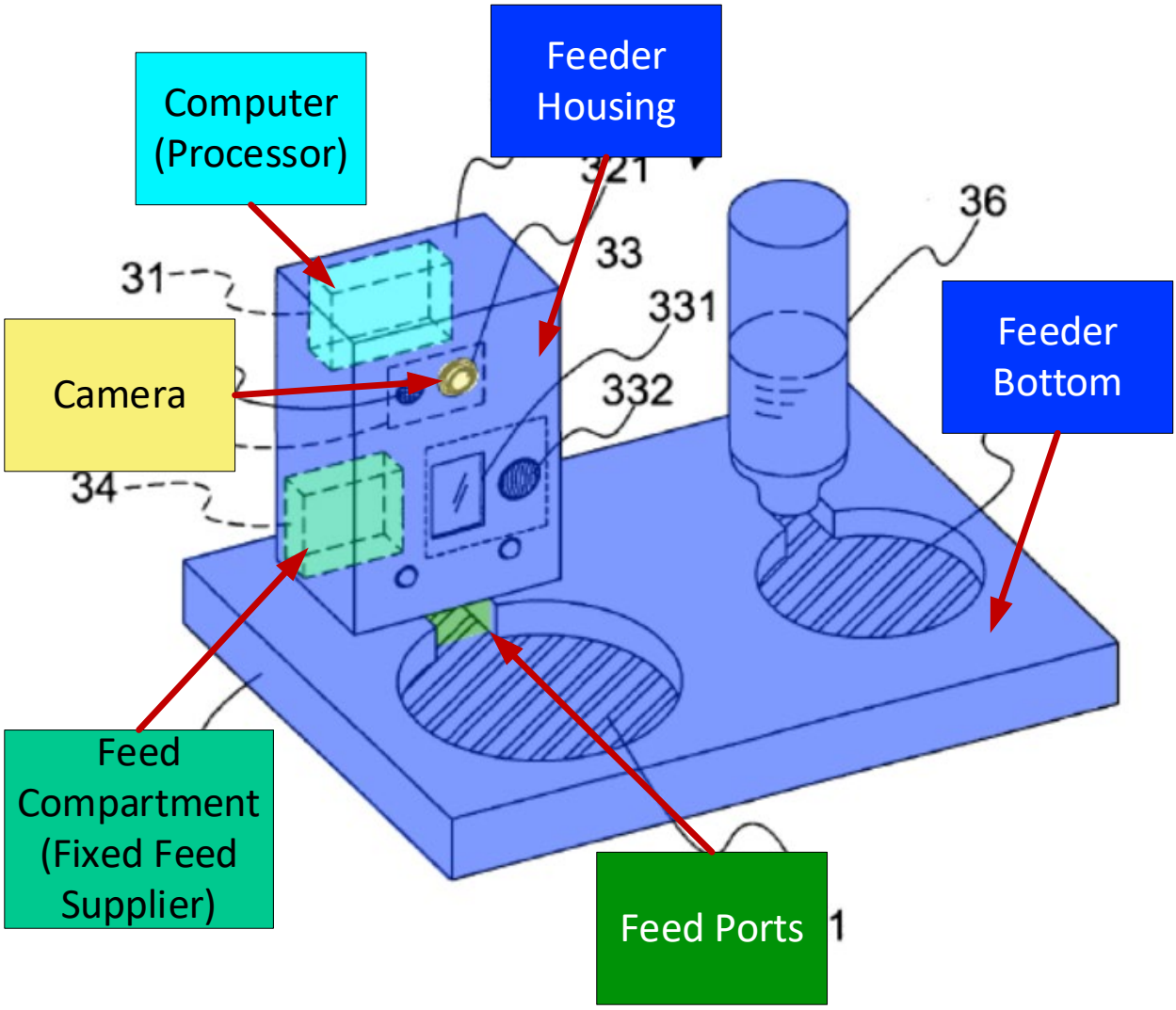

Computer (Processor)
Feeder Housing
Camera
Feeder Bottom
Feed Compartment (Fixed Feed Supplier)
Feed Ports
31
321
33
331
332
34
36
1

FIG.2

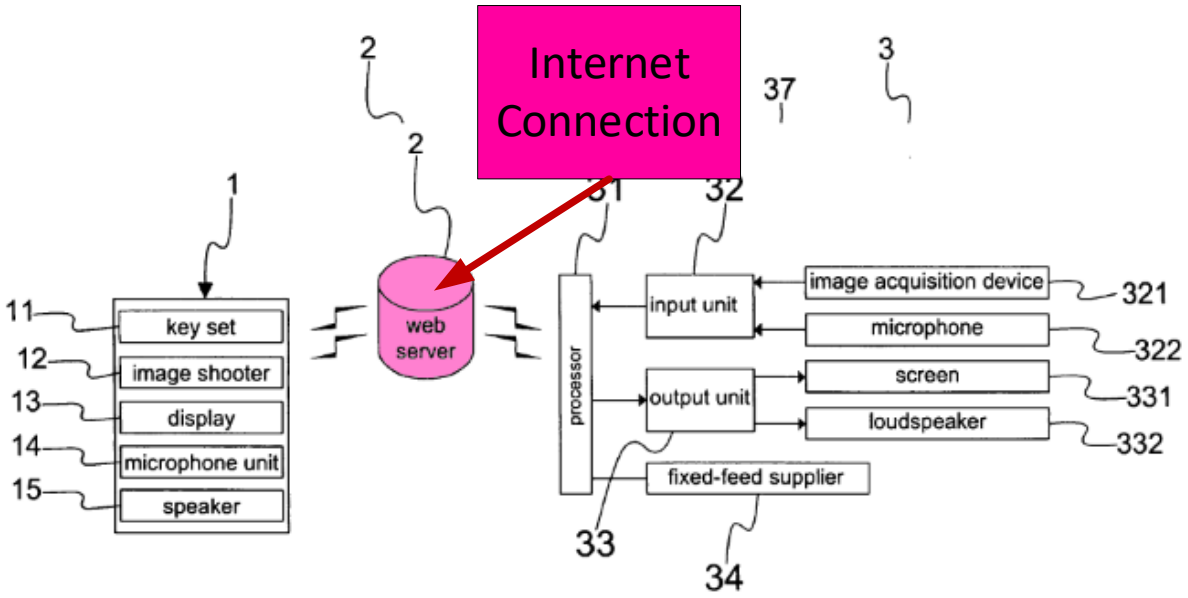


FIG.4

(EX1007 at FIGS. 2, 4).

3. Claim 1(b)

1(b)	a. a feeder housing;

As shown in FIGS. 2 and 3 of Kin, the feeding device (3) has a feeder housing. (EX1001 ¶169; EX1007 ¶18). As Kin states, "[w]hen feeding the pet, the pet raiser uses the operating device 1 coordinated with the web server 2 to sent [sic] a control signal to the processor 31 of the feeding device 3. The processor 31 activates the fixed-feed supplier 34 to supply a feeding in a first containing area 351 of a base 35 for the pet to eat. At the same time, some water is supplied by a water supplier 36 into a second containing area 351 of the base 35…." (*Id*).

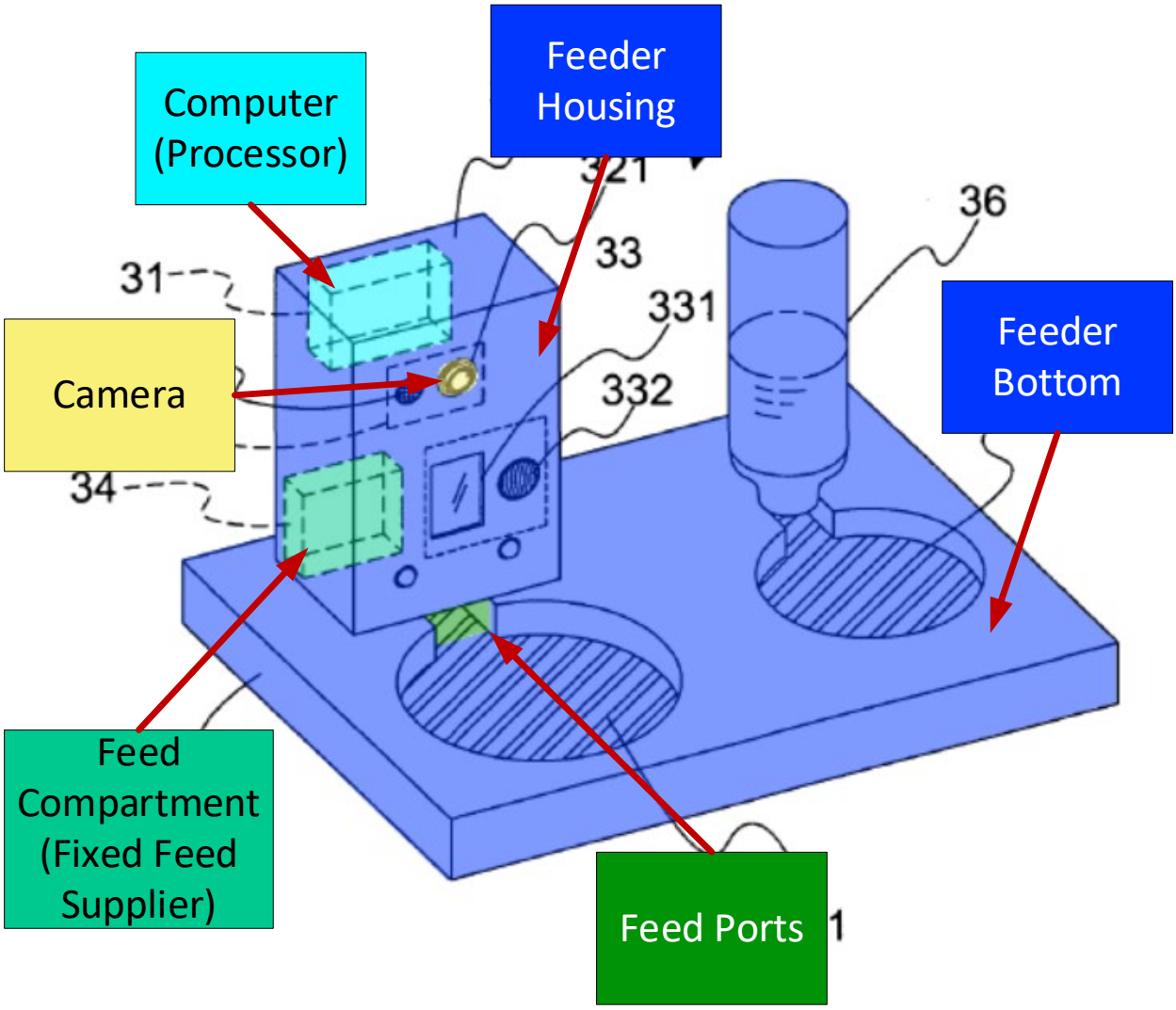


FIG.2

(EX1007 at FIG. 2).

4. Claim 1(c)

1(c)	b. a feeder bottom;

As shown in FIGS. 2 and 3 of Kin, the feeding device (3) has a feeder bottom (the base (35)). "When feeding the pet, the pet raiser uses the operating

device 1 coordinated with the web server 2 to sent [sic, send] a control signal to the processor 31 of the feeding device 3. The processor 31 activates the fixed-feed supplier 34 to supply a feeding in a first containing area 351 of a base 35 for the pet to eat. At the same time, some water is supplied by a water supplier 36 into a second containing area 351 of the base 35…." (EX1001 ¶170; EX1007 ¶18).

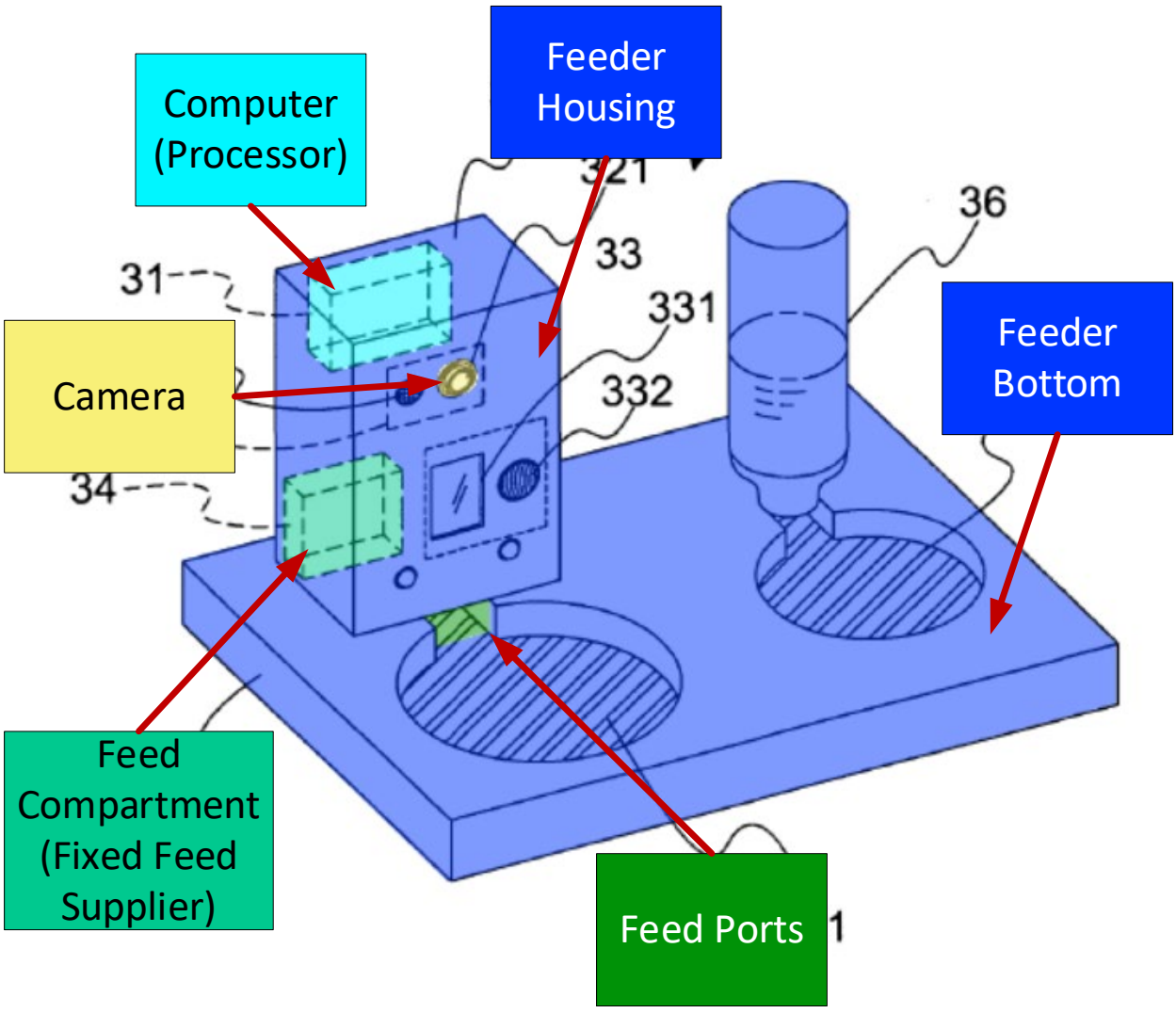


FIG.2

5. Claim 1(d)

1(d)	c. a feed port disposed on the feeder bottom;

Kin discloses a feed port on the feeder bottom. The feed port is the aperture (not labeled) between the feed supplier (34) and the containing area (351). (EX1001 ¶171).

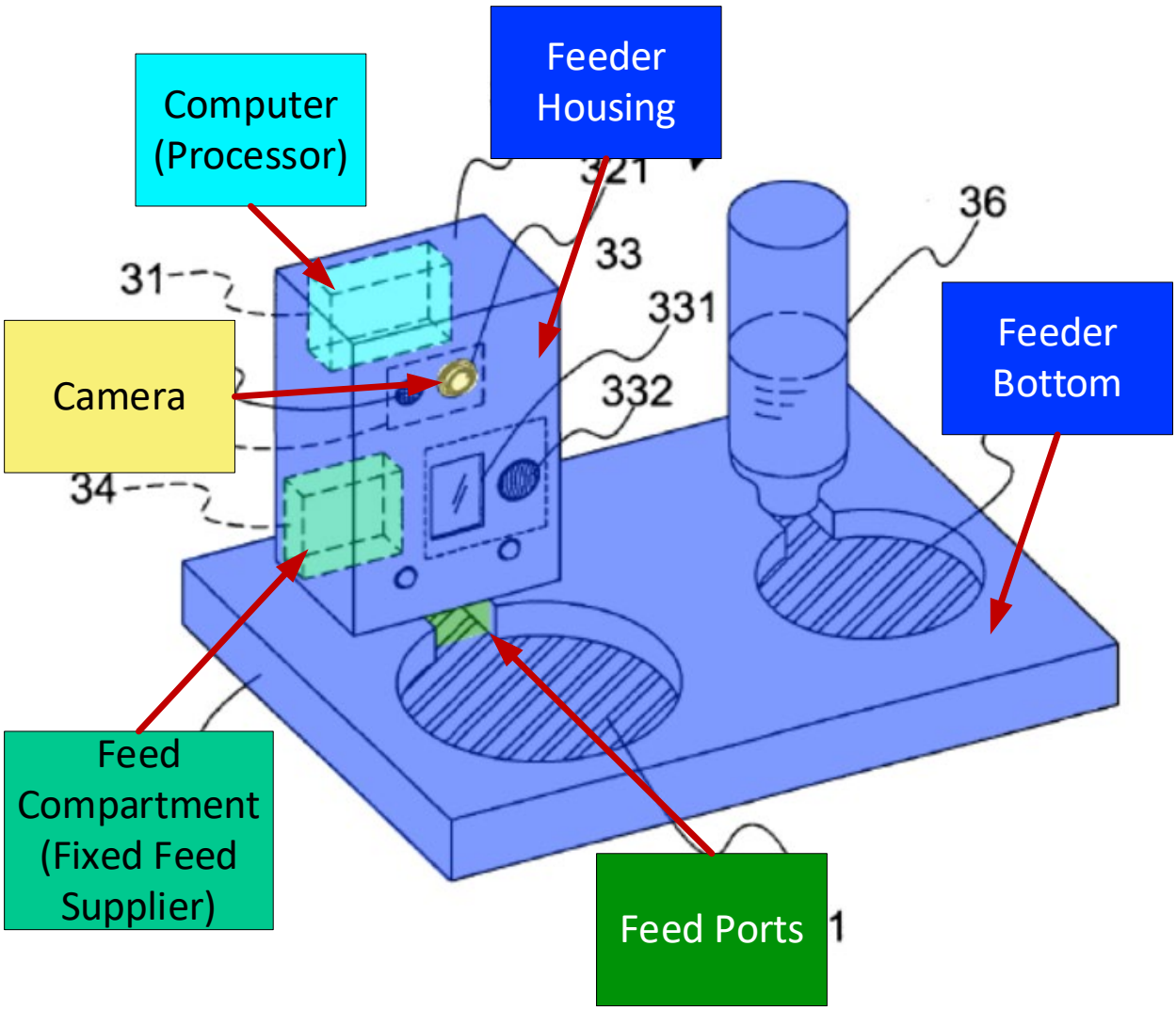


FIG.2

6. Claim 1(e)

1(e)	d. the camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds;

Kin discloses a camera internally mounted to the bird feeder such that the camera is aligned with the feed port to observe feeding birds. "The feeding device 3 sends a photo of the specific environment and a sound of a pet to the display 13 and the speaker 15 of the operating device 1 through the image acquisition device 321 and the microphone 322 of the input unit 32." (EX1001 ¶¶172-174; EX1007 ¶17). The image acquisition device is the camera. (*Id*).

As can be seen in FIG. 2, the image acquisition device is mounted internally to the feeder housing and is aligned with the feed port, so that feeding birds can be observed. (*Id*).

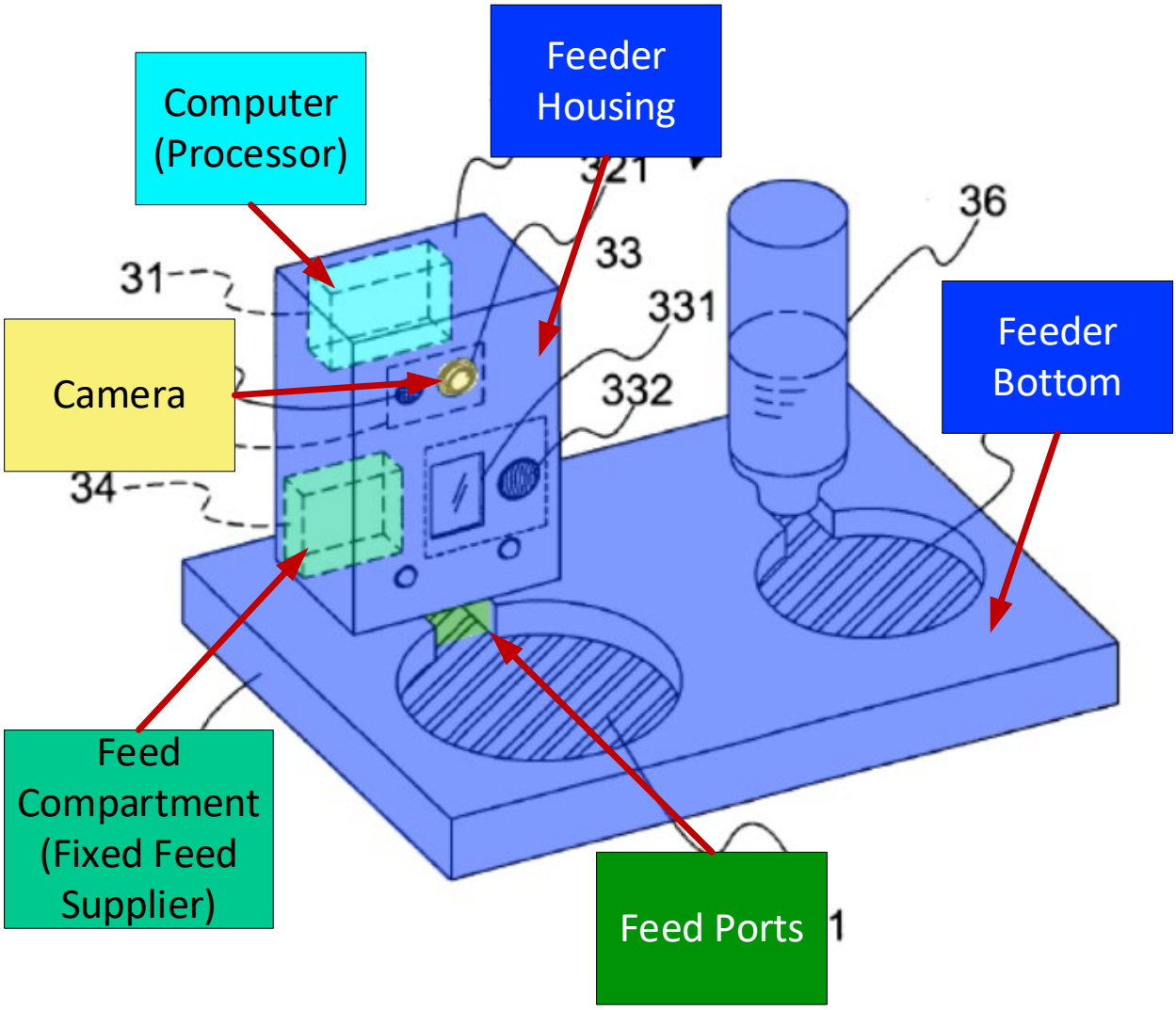


FIG.2

(EX1007 at FIG. 2).

7. Claim 1(f)

1(f)	e. the computer located within the feeder housing;

The processor (31) in Kin is the computer, and is located within the feeder housing. (EX1001 ¶175; EX1007 ¶¶15, 18).

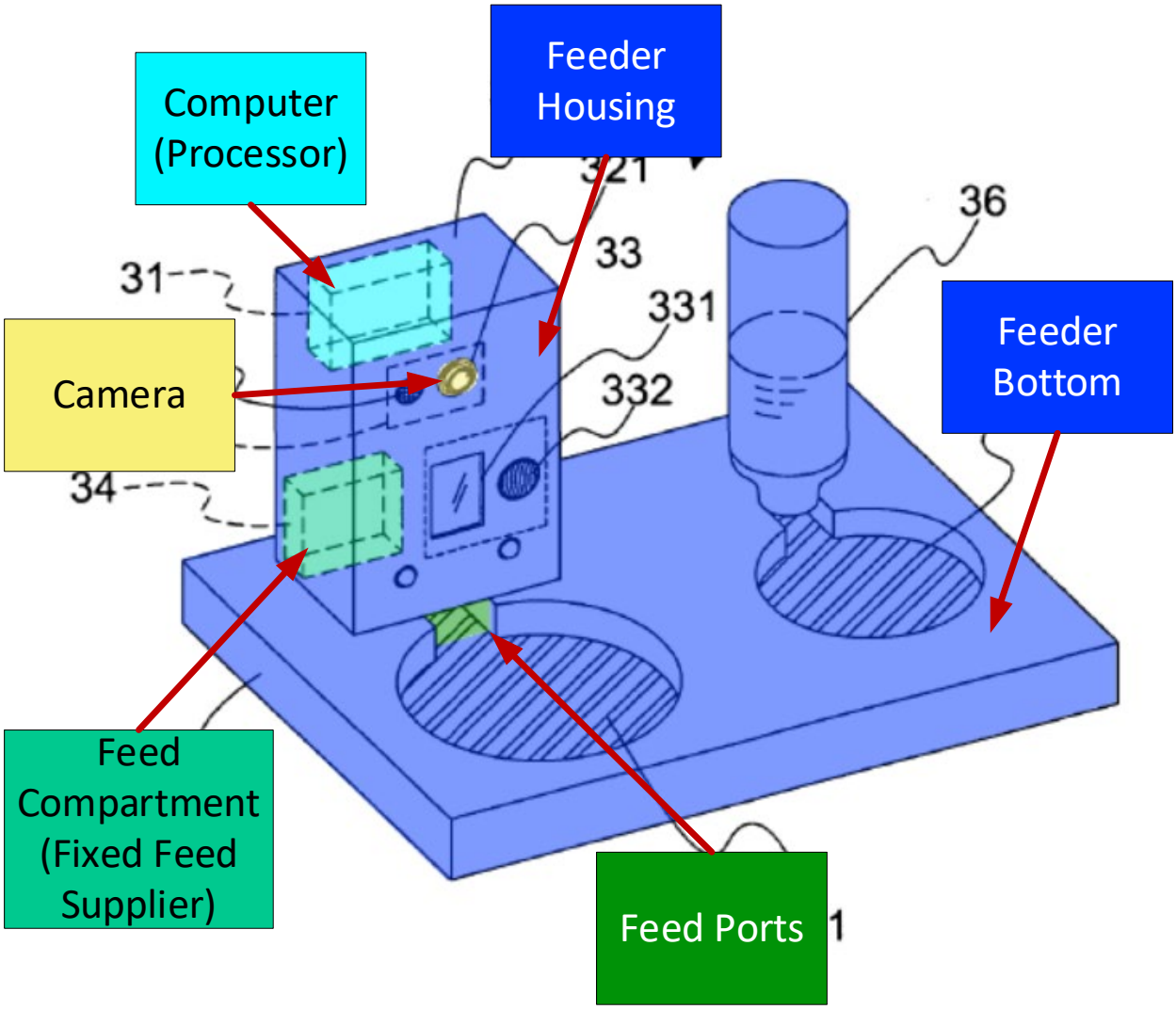


FIG.2

(EX1007 at FIG. 2).

8. Claim 1(g)

1(g)	f. an internal power source; and

Kin does not explicitly disclose a power source, but it is implicit that the feeder would include an internal power source. It would have been obvious to

POSITA to provide power to the feeding device (3) to power the electronics integrated into the feeding device. (EX1001 ¶176). It would further have been obvious to POSITA to place the power source (such as a battery) internally to protect the it from external forces. (*Id*). POSITA would have had a reasonable expectation of success because placing a power source inside the feeder to provide power to the device is a well-known technique that is easy for POSITA to accomplish. (*Id*).

9. Claim 1(h)

1(h)	g. a WiFi adapter located within the feeder housing.

Kin includes a WiFi adapter. "The operating device 1 and the feeding device 3 are connected to the web server 2 through a wiring connection, or through a wireless connection by using a Bluetooth protocol or a WiFi protocol, so that a control signal from the operating device 1 is received for operating an interactive feeding. Thus, a novel remote interactive feeder is obtained." (EX1001 ¶¶177-178; EX1007 ¶15). Therefore, to connect using WiFi requires a device capable of connecting via WiFi, and that device is the WiFi adapter.

It would have been obvious to place the WiFi adapter inside the housing of the feeder. (*Id*). The other electronics are all located within the feeder housing, and so POSITA would have been motivated to place the WiFi adapter with the other

electronics. (*Id*). Furthermore, POSITA would have known that placing the WiFi adapter inside the feeder housing would help protect the WiFi adapter from external forces, and would thus have been motivated to place the WiFi adapter inside the feeder housing. (*Id*). POSITA would have reasonably expected success placing the WiFi adapter inside the feeder housing because placing an electronic component inside a shroud, shell, or other container is a well-known technique that is easy for POSITA to achieve. (*Id*).

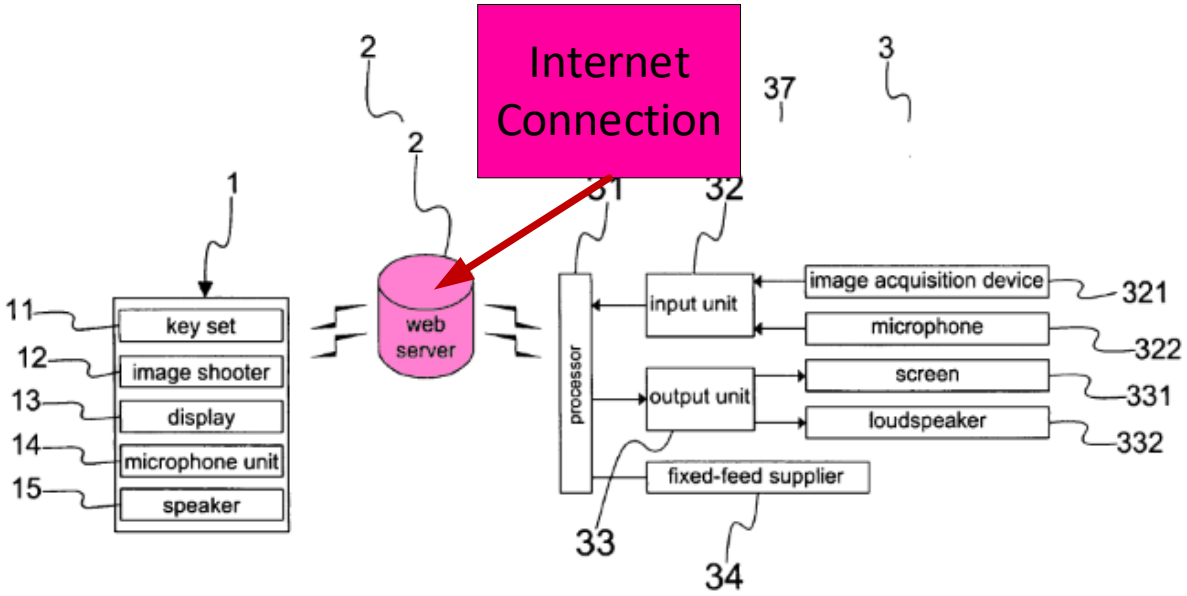


FIG.4

(EX1007 at FIG. 4).

XVI. Ground 3A | Kin in view of Rofougaran

A. Claim 2

2	The self-contained bird feeder of claim 1 wherein the WiFi adapter is a WiFi dongle.

The combination of Kin with Rofougaran discloses a WiFi dongle.

Rofougaran discloses a USB (WiFi) dongle configured to facilitate wireless communications using the 802.11 (WiFi) standard. (EX1009 ¶¶76, 107, 112). It would have been obvious to use the WiFi dongle of Rofougaran as the wireless transmitter of Kin because of the many well-known advantages that USB offered prior to the priority date of the '242 Patent, including a single connector type to connect any PC peripheral, hot plug support, low-cost solution for both system and peripheral implementations, enhanced performance capability, support for legacy hardware and software, and low power implementation. (EX1001 ¶¶179-184).

Furthermore, the use of USB WiFi dongles was a known technique for enabling WiFi connectivity and its use yields a predictable result (enabling WiFi connectivity). (*Id*). Thus, it would have been obvious to POSITA to use a WiFi dongle, and POSITA would have reasonably expected success, because using WiFi dongles with USB connectors was a well-known technique for enabling WiFi, and because POSITA would have been using the WiFi dongle for its intended purpose (enabling WiFi). (*Id*).

Likewise, the use of a USB WiFi dongle would have been obvious to try because there are a finite number of potential types of WiFi adapter to use, and a

USB dongle was a well-known type of WiFi adapter. POSITA would have reasonably expected success because POSITA would have used the WiFi dongle for its intended purpose of enabling WiFi. (*Id*).

Likewise, use of a WiFi dongle in lieu of a different type of WiFi adapter is merely the simple substitution of one known element (from the class of WiFi adapters) for another known element (from the class of WiFi dongle adapters) to obtain a predictable result (access to WiFi). (*Id*).

Therefore, there would have been a reasonable expectation of success using a USB WiFi dongle because USB WiFi dongles are well-known, well-understood, and easy for POSITA to implement. (*Id*).

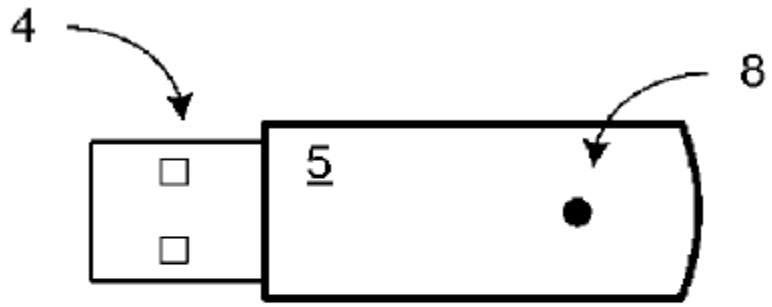


FIG. 3

(EX1009 at FIG. 3).

XVII. Ground 3B | Kin in view of Bennett

A. Claim 3

3	The self-contained bird feeder of claim 1 further comprising a feed compartment disposed in the feeder housing and a feed compartment separator disposed in the feed compartment, whereby feed is fed by gravity from the feed compartment through the feeder housing, to the feeder bottom, and then to the feed port.

Kin in view of Bennett discloses a feed compartment separator in a feed compartment, where feed is gravity fed from the feed compartment through the feeder housing to the feeder bottom and then to the feed port.

Kin features a feed compartment separator. (EX1007 at FIG. 2, ¶¶15-18). Specifically, Kin discloses a fixed-feed supplier (34) located in the feeder housing (case 37), which demarcates a space for feed to occupy. (EX1001 ¶¶185-189; EX1007 ¶15). As a result, a separator must be present at least to separate feed in the fixed-feed supplier 34 from the rest of the feed compartment (i.e., the rest of the inside of the case 37). (*Id*).

Kin is gravity fed at least in part because it is a vertical design for both water and physical feed. (*Id.*; EX1007 ¶¶15-18). However, it would also have been obvious to POSITA to make Kin operate on a gravity fed principle because it would make the system as simple as possible to reduce the likelihood of malfunctions and to ease manufacturing difficulties and costs. (*Id*). Thus, it would

have been obvious to POSITA to use a simple system where gravity causes the feed to move. (*Id*).

Kin in view of Bennett discloses a feed compartment separator as well.

Bennett discloses a separator, a "sealing barrier," that "prevents the liquid in the upper chamber from escaping into the lower chamber containing the station controller and other electrical components and associated circuitry. The sealing barrier may be curved, flat, other otherwise shaped to accommodate the attachment of sensors and electrical loads at various locations to optimize their respective functions." (EX1005 ¶41).

It would have been obvious to POSITA to use a barrier as a separator in Kin, such as the barrier in Bennett, to separate the feed from the electrical components to protect the electrical components, as taught by Bennett. (EX1001 ¶¶185-189; EX1005 ¶41). POSITA would have had a reasonable expectation of success because insulating the electronics from the feed is easy to accomplish and well-within POSITA's skill. (*Id*). Furthermore, POSITA would have known that insulating electronics from the animal feed is a known technique that will yield predictable results (of protecting the electronics). (*Id*).

XVIII. Ground 3C | Kin in view of Bevan and Raspberry Pi 2 Model B

A. Claim 4

4	The self-contained bird feeder of claim 1 wherein the computer comprises: a processor; a display connector; a multi-media interface; an audio/video jack; and an ethernet socket.

Kin discloses a processor (31). It would also have been obvious to use the Raspberry Pi 2 Model B as the controller of Kin for the reasons laid out below. As a result, Kin in view of Bevan and Raspberry Pi 2 Model B discloses a computer with a processor, a display connector, a multi-media interface, an audio/video jack, and an ethernet socket.

It would have been obvious to use a Raspberry Pi as the controller for the bird feeder of Kin because it was well-known to POSITA to use Raspberry Pi devices as controllers for bird feeder camera systems, as taught by Bevan. (EX1001 ¶¶190-198; EX1010 at 5-9). Bevan teaches using a Raspberry Pi as the controller for a wildlife camera that detects motion and takes pictures when birds are present at a bird table (a type of flat bird feeder). (*Id*). It would therefore have been obvious to POSITA to use a Raspberry Pi to control the capture of images and video of birds when the birds were present at a bird feeder. (*Id*).

Furthermore, as PO admits, Raspberry Pi was publicly available for handling wireless connectivity and camera control as part of the Raspbian Linux Distribution. (*Id*.; EX1003 at col. 3:27-39). POSITA would have been aware of the Raspbian Linux Distribution and the convenient functionality the distribution

provided, and would therefore have been further motivated to use a Raspberry Pi device as the controller for the bird feeder to take advantage of the Raspbian Linux Distribution. (*Id*). Among other advantages, POSITA would have understood the Raspbian Linux Distribution to provide pre-written and debugged software that would at least save POSITA time when implementing the Raspberry Pi 2 Model B as the controller for the bird feeder. (*Id*).

The Raspberry Pi 2 Model B was available prior to the priority date of the '242 Patent. This Raspberry Pi model includes an HDMI port, an ethernet port, a micro-USB port/socket, a standard USB port, and a combined 3.5mm audio jack with composite video. (*Id*.; EX1010 at 12). The Model B also included a Camera Serial Interface (CSI) and Display Serial Interface (DSI). (*Id*). In short, the Raspberry Pi 2 Model B includes all of the elements of claim 4 and actually appears to be the source of those elements given the similarities between the figure of the Raspberry Pi in the instant patent and the shape and layout of the Raspberry Pi 2 Model B board. (*Id*).

Because the Raspberry Pi 2 Model B provides connections for all of the different types of sensors used in Bennett, and because it was well-known and well-understood to use Raspberry Pi devices to control cameras, such as those in Bennett, it would have been obvious to POSITA to use the Raspberry Pi 2 Model B

as the microcontroller board in Bennett. (*Id*). Accordingly, claim 4 would have been obvious in its entirety.

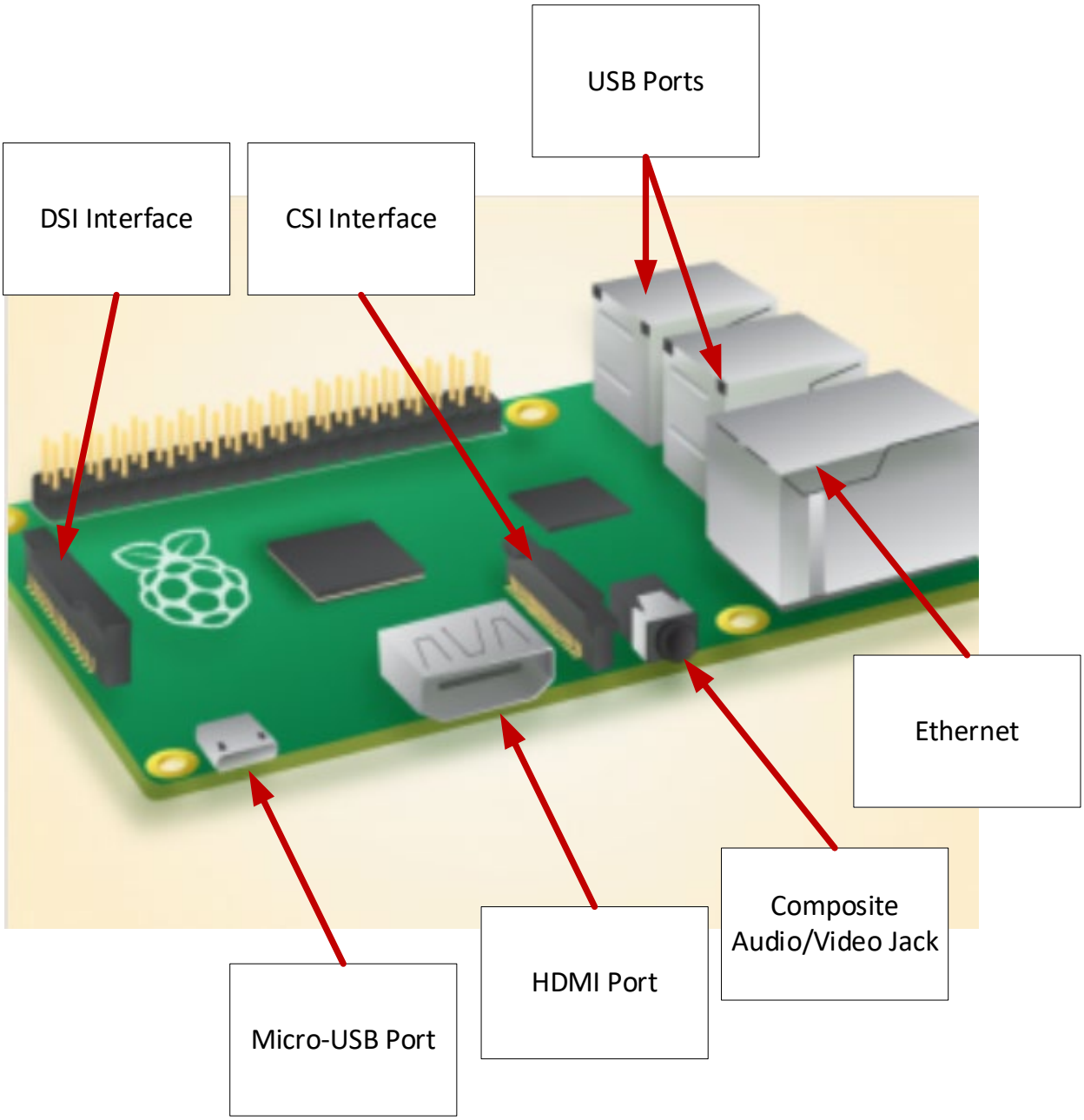
POSITA would have reasonably expected success using the Raspberry Pi 2 Model B because Bevan teaches how to capture and transmit images of birds using a Raspberry Pi and a camera, indicating that the desired functionality was possible and readily achievable. (*Id*).

Furthermore, using a Raspberry Pi device as a driver for a camera was a known technique, as indicated in Bevan, that yielded predictable results (controlling the camera system), and would do so in this context as well. (*Id*).

Likewise, use of a Raspberry Pi 2 Model B in lieu of a different type of controller is merely the simple substitution of one known element (a controller) for another known element (a Raspberry Pi 2 Model B, a type of controller) to obtain a predictable result (control over the hardware elements of the system as a whole). (*Id*).

Finally, it would be obvious to try the Raspberry Pi 2 Model B because there were a finite number of control circuits and microcontrollers capable of performing the functions described in Bennett that are performed by the controller. (*Id*). The Raspberry Pi 2 Model B was one such device and using it as the controller would be using it for one of its intended purposes (as a controller for simple electronic devices). POSITA would reasonably expect this to result in a suitable controller,

especially in view of the fact that it was known to use Raspberry Pi devices as controllers for bird feeder cameras. (*Id*).



(EX1010 at 12).

B. Claim 5

5	The self-contained bird feeder of claim 1 wherein the computer comprises a micro USB socket and a USB port.

The combination of Kin with Bevan and the Raspberry Pi 2 Model B of claim 1 includes the features of the Raspberry Pi 2 Model B, including a micro-USB socket and a USB port. (EX1001 ¶199; EX1010 at 12). Thus, the combination of claim 1, which is motivated for the same reasons as described in claim 4, discloses all elements of claim 5. *(Id).*

C. Claim 6

6	The self-contained bird feeder of claim 4 wherein the multi-media interface comprises an HDMI port.

The combination of Kin with Bevan and the Raspberry Pi 2 Model B includes the features of the Raspberry Pi 2 Model B, including an HDMI port. (EX1001 ¶200; EX1010 at 12). Thus, the combination of claim 4, which is motivated for the same reasons as described in claim 1, discloses all elements of claim 6. (*Id*).

Respectfully,

Date: November 21, 2025

/Craig R. Smith/

Craig R. Smith
Registration No. 45,113
LANDO & ANASTASI, LLP
60 State St.
Floor 23
Boston, MA 02109
Tel: (617)-395-7081
csmith@lalaw.com

Lead Counsel for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), I hereby certify that on November 21, 2025, I caused a copy of the foregoing Petition for *Inter Partes* Review and Exhibits in the List of Exhibits to be served via electronic mail on Woodstream Corporation at the following email addresses:

Matthew M. Hennesy	mhennesy@barley.com
Stephanie Riley	stephanie.riley@wbd-us.com
Zachary Murphy	zachary.murphy@wbd-us.com
Salvatore Anastasi	sanastasi@barley.com

Date: November 21, 2025

/Craig R. Smith/

Craig R. Smith
Registration No. 45,113
LANDO & ANASTASI, LLP
60 State St.
Floor 23
Boston, MA 02109
Tel: (617)-395-7081
csmith@lalaw.com