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FEB 2 - 2017

DAVID CREWS, CLERK
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Deputy

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF MISSISSIPPI
Greenville Division

HAWK TECHNOLOGY SYSTEMS, LLC,)
)
     Plaintiff,   )   **Case No.** 4:17CV015-DMB-JMV
)
v.   )
)
PIGGLY WIGGLY, LLC,   )
)
     Defendant.   )
_____)

COMPLAINT

Plaintiff, Hawk Technology Systems, LLC ("Hawk"), hereby sues Piggly Wiggly, LLC ("Piggly Wiggly") and alleges:

NATURE OF THE ACTION

1.   Piggly Wiggly infringed Claim 12 ("Claim 12") of United States Patent No. RE43,462 ('462 Patent), or one or more of Claim 12's dependent claims. The '462 Patent is a reissue of United States Patent No. 5,625,410 (the '410 Patent). The independent claims in the reissued '462 Patent are substantially identical to the corresponding claims in the original '410 Patent.

2.   The abstract for the '462 Patent states:

> A PC-based system for monitoring and storing representative images from video cameras which may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical. Provisions are included for adding detection or alarm systems which will automatically alter image size, sampling rate and/or frame rate of an individual input source, or activate other

physical responses. In addition to security system monitoring, further applications of the invention are disclosed for process monitoring in manufacturing environments and also for applications in videoconferencing.

PARTIES

3. Hawk is a limited liability company organized and existing under the laws of the state of Florida and maintains its principal place of business at 2 South Biscayne Blvd., Suite 3800, Miami, Florida 33131.

4. Piggly Wiggly is a foreign limited liability company organized and existing under the laws of the state of New Hampshire with its principal business address located at 7 Corporate Drive, Keene, New Hampshire, 03431, and at all relevant times herein was the franchisor of over six hundred (600) Piggly Wiggly stores across the United States.

5. Piggly Wiggly may be served with process through its Mississippi registered agent, CT Corporation System, located at 645 Lakeland East Drive, Suite 101, Flowood, Mississippi 39232.

JURISDICTION AND VENUE

6. Pursuant to 28 U.S.C. §§ 1331 and 1338(a), this Court has original jurisdiction over the subject matter of this action because this is an action arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et. seq.*

7. This court has personal jurisdiction over Piggly Wiggly because Piggly Wiggly (a) operates, conducts, engages in and/or carries on a business in the state of Mississippi; as it is the franchisor of approximately forty (40) Piggly wiggly stores

within the State of Mississippi; (b) committed tortious acts within the state of Mississippi; and (c) is engaging in substantial and not isolated activity within the state of Mississippi.

8. Piggly Wiggly is presently the franchisor of several Piggly Wiggly stores in northern Mississippi. Pursuant to 28 U.S.C. §§ 1391 and 1400(b), venue is proper in this district.

GENERAL ALLEGATIONS

9. Hawk Technology Systems was formed in 2012 to commercialize the inventions of its founder, Barry Schwab.

10. Mr. Ken Washino and Mr. Schwab invented what is claimed by the '462 Patent.

11. Mr. Washino and Mr. Schwab have collaborated on a number of other pioneering inventions resulting in patents in the areas of video archiving, video downloading and digital cinema.

12. Mr. Schwab also is a named inventor on more than thirty patents, ranging from consumer products to secure network computing.

13. Hawk is the exclusive owner of all rights, title, and interest in the '462 Patent, including the right to exclude others and to enforce, sue and recover damages for past and future infringement thereof.

14. Hawk became the owner of all rights, title, and interest in the '462 Patent by virtue of an assignment from Multi-Format, Inc., a New Jersey corporation ("MFI").

15.   MFI obtained its rights, title, and interest in the '462 Patent by virtue of an assignment from Messrs. Washino and Schwab.

Claim 12 Of The '462 Patent

16.   Claim 12 of the '462 patent states:

The method of simultaneously displaying and storing multiple video images, comprising the steps of:

receiving video images at a personal computer based system from one or more sources;

digitizing any of the images not already in digital form using an analog-to-digital converter;

displaying at least certain of the digitized images in separate windows on a personal computer based display device, using a first set of temporal and spatial parameters associated with each image in each window;

converting one or more of the video source images into a data storage format using a second set of temporal and spatial parameters associated with each image; and
simultaneously storing the converted images in a storage device.

('462 Patent, Col. 11, line 62 – Col. 12, line 10).

17.   By reviewing publically available information Hawk learned that Piggly Wiggly infringed Claim 12 of the '462 Patent.

18.   A claim chart, attached as Exhibit A, explains how Piggly Wiggly performs each step of method Claim 12.

19.   All conditions precedent to bringing this action have occurred or been waived.

20.   Hawk has retained counsel to represent it in this matter and is obligated to pay its counsel a reasonable fee for its services.

21.   Pursuant to 35 U.S.C. § 285, Hawk is entitled to recover its attorneys' fees.

22.   For the avoidance of doubt, Hawk only seeks damages which are not barred by the statute of limitations for infringement that occurred prior to the patent expiring on April 29, 2014.

COUNT I: DIRECT INFRINGEMENT OF THE '462 PATENT

23.   The allegations contained in paragraphs 1-22 above are hereby re-alleged as if fully set forth herein.

24.   Without Hawk's authorization, Piggly Wiggly infringed Claim 12 of the '462 Patent or one or more of Claim 12's dependent claims.

25.   Hawk has been damaged by Piggly Wiggly's infringement.

WHEREFORE, Hawk respectfully requests the Court:

A.   Enter a judgment finding that Piggly Wiggly, LLC directly infringed Claim 12 of the '462 Patent or one of Claim 12's dependent claims.

B.   Pursuant to 35 U.S.C. § 284, order Piggly Wiggly, LLC to pay damages adequate to compensate for the infringement, but in no event less than a reasonable royalty, together with interest and costs;
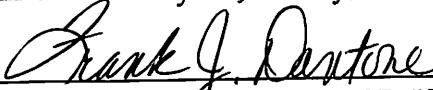
C.   Find this to be an exceptional case of patent infringement under 35 U.S.C. § 285 and award reasonable attorneys' fees, costs, and expenses incurred by Hawk in prosecuting this action; and

D.   Award such other and further relief as the Court deems just and proper.

JURY TRIAL

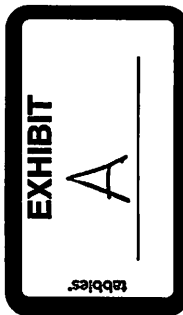Plaintiff demands a trial by jury on all issues so triable.

RESPECTFULLY SUBMITTED, this the 31st day of January, 2017.

FRANK J. DANTONE, MSB #5792
HENDERSON DANTONE, P.A.
241 Main St.
P.O. Box 778
Greenville, MS 38702
Telephone No. (662) 378-3400
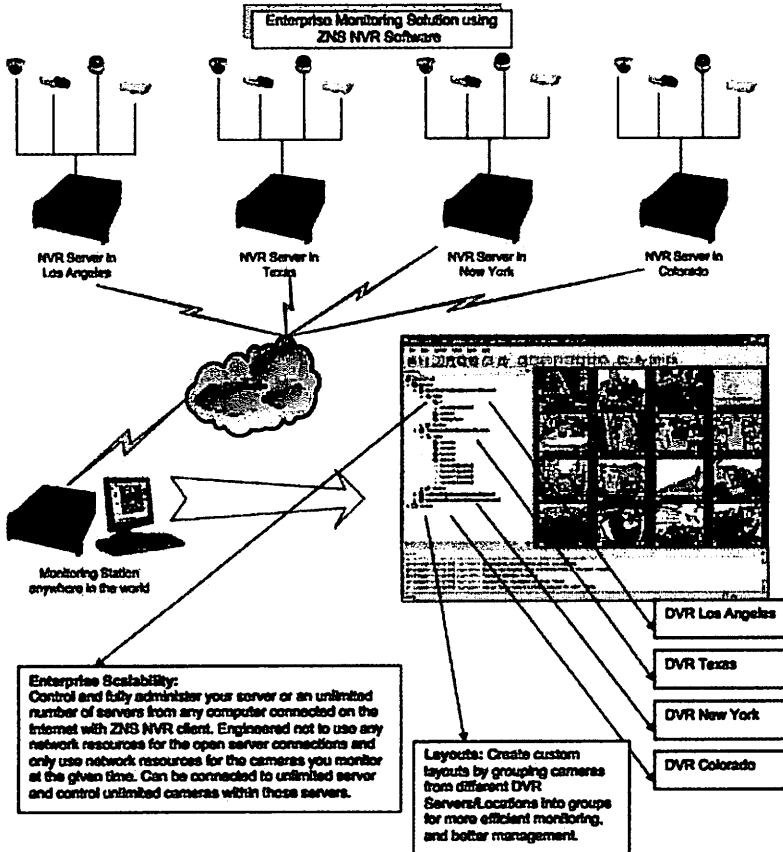Fax No. (662) 378-3413
Email: fjd@hdpa.com

Attorney for Plaintiff,
Hawk Technology Systems, LLC

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

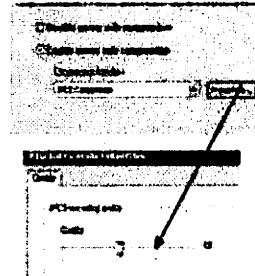| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
A video storage and display system, comprising:	*(4:37-44)* "The present invention implements a …video monitoring system … employing display windowing software… The preferred recording medium…" *(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." *(4:64-65)* "Fig. 1 shows a computer monitor display for a system configured in accordance with Mode I as listed in Fig. 15."	[See page 5] **The Ganz ZNS NVR (ZNS-NVR) is a digital video recording and remote surveillance software package** for Windows. The ZNS NVR accepts video streams from all major Network IP cameras and servers, Frame Grabbers and any Direct Show compatible devices including Webcams and USB cameras. This along with the ZNS NVR client-server architecture allows you to build fully scalable solutions ranging from a single camera up to thousands of cameras. [See page 13] **The ZNS NVR Client Application is the component to monitor live and recorded video from several ZNS NVR servers.** Also the ZNS NVR Client is the main tool to manage and configure local and remote ZNS NVR servers.	Ganz ZNS NVR records and displays the videos on the monitor. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

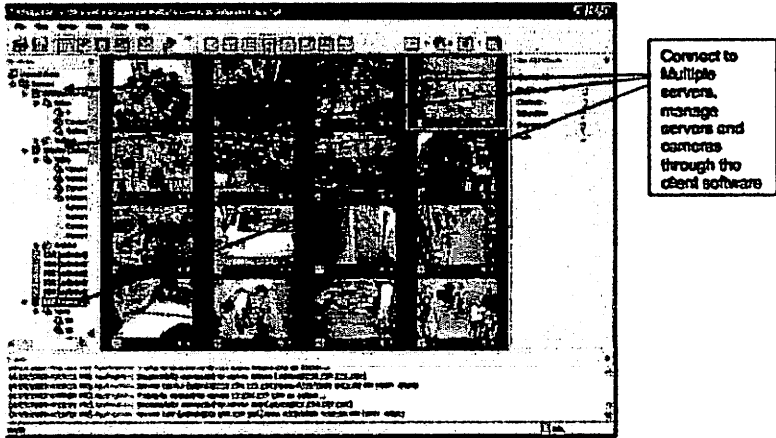| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
~~a plurality of~~ *one or more* video cameras, each outputting a signal representative of a video image;	**(2:66–3:3)** "…an automated video monitoring system by way of a PC-based platform employing display windowing software, <u>with camera sources being interfaced</u> to an input circuit board which includes provisions for image data compression." **(4:37-41)** "…an automated video monitoring system by way of a PC-based platform employing display windowing software, <u>with camera sources being interfaced</u> to an input circuit board which includes provisions for image data compression." **(Abstract, ll. 1-8)** "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical."	[See page 14] 	Ganz ZNS NVR server receives video images from various cameras. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

Page 2 of 30

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

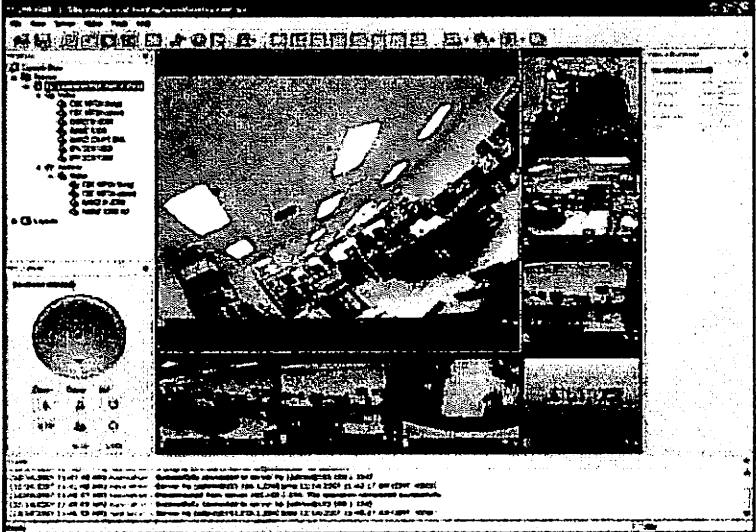| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
means to receive the signals from each camera and digitally compress the images;	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." *(2:66–3:3)* "...an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(4:37-41)* "...an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression."	[See page 6] **Network camera, IP addressable camera, and IP Camera, all refer to the same type of camera**, which is a digital camera that can be directly connected to the Internet or network through a CAT5 or Wi-Fi connection. **Network cameras send already digitized and compressed video streams.** [See page 34] **Video Compression** Enable Server Side Compression- Compresses video according to the compression you choose. The ZNS NVR continuously integrates compressions so feel free to check here every so often.	Ganz ZNS NVR server compresses video images received from plurality of cameras. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
two forms of high-capacity storage media, one being randomly searchable while the other continues to store the digitally compressed image; and	*(3:30– 35)* "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of <u>disk storage devices</u>, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules." *(3:64– 67)* "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or <u>disk-based</u>, or both tape-based and <u>disk-based data recording means</u>." *(6:22– 33)* "An additional feature is the capability to implement a dual-recording-media option. This facility provides the ability to record simultaneously both on a tape (for high capacity, long term storage) and also on a removable media, such as a removable hard disk (i.e. PCMCIA) or magneto-optical disk (for short-term storage of up to 24 hours of images). These disks facilitate high-speed searching of recorded information without interrupting the tape, as well as providing a back up for the recording on the tape. In addition, the system is capable of simultaneously searching the recorded images on the disk storage unit while continuing to store images on the tape storage unit."	**[See page 21]** Directories- This is where you will see your available **hard drive space**. When you check and highlight either drive, the details option below will become available for further data entry. If you do not want your **C:drive to be used for storage**, do not check it. If you do but only wish for a small portion to be used, below is where we will define that need. **[See page 2]** | Storage (SATA-3Gb/s-7200 RPM)	Hot Swap 6TB – 15TB Internal	Hot Swap 18TB-36TB Internal	Hot Swap 39TB-84TB Internal
Graphics Card	128 bit/1GB (HDMI/DVI/VGA)		
CPU	Intel i7 (4770 Quad Core)		
RAM	8GB fully buffered		
Dimensions (W x D x H)	17" x 26" x 5.2"	17" x 26" x 5.2"	17.1" x 27.5" x7"		Ganz ZNS NVR server consists of two high capacity storage media- one media id SATA which is randomly searchable and other storage media is to store compressed images. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf http://ganzsecurity.com/resources/files_v2/719/ZNR_RAID_Lite_0814.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices:	*(3:54-57)* "It is an object of the invention to provide a more efficient method for monitoring camera outputs by means of a multiple-window display system <u>implemented on a computer platform</u>." *(3:58-63)* "It is another object of the invention to provide an improved recording system for event-logging or security applications, ... and further <u>to implement this system on a computer platform</u>." *(4:37-41)* "...an automated video monitoring system by way of a PC-based platform employing display windowing software, <u>with camera sources being interfaced</u> to an input circuit board which includes provisions for image data compression."	**[See page 6]** **Network camera, IP addressable camera, and IP Camera, all refer to the same type of camera**, which is a digital camera that can be directly connected to the Internet or network through a CAT5 or Wi-Fi connection. **Network cameras send already digitized and compressed video streams.** **[See page 13]** 	Ganz ZNS NVR server provides digitally compressed image to computer monitor for display. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
a display screen,	*(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(4:64-65)* "Fig. 1 shows a computer monitor display for a system configured in accordance with Mode I as listed in Fig. 15."	[See page 5] 	Ganz ZNS NVR supports the display of images on monitor screen. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

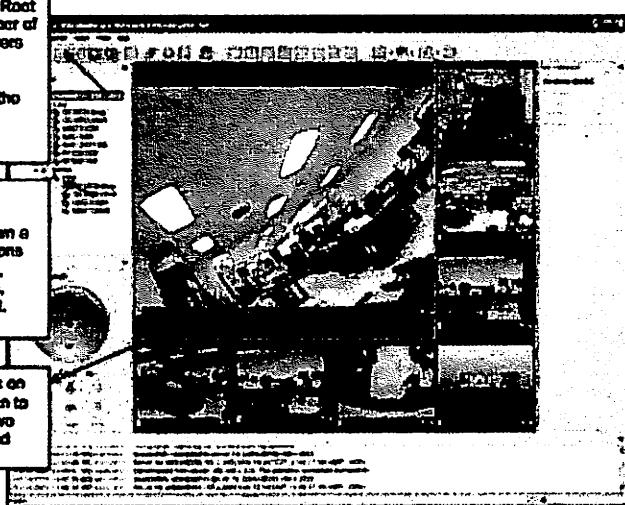# HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
means to receive externally derived operator commands, and	*(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." *(8:28– 42)* "It will be appreciated that in any of these implementations, alarm or sensor signals may be utilized to automatically re-configure the system operating mode, as, for example, increasing the frame rate or image size for an image source associated with the sensor which has initiated the alarm signal condition. As explained above, the displayed windows and image sizes may be reconfigured into an operating mode different from the reconfiguration of the digital storage mode. If desired, the operator may choose to allow the system to automatically adjust the compression ratio utilized for a particular window in response to alarm signal conditions. Alternatively, the compression ratio may be adjusted in response to the selection by the operator of a particular window for closer monitoring, by switching to an image window having larger dimensions in pixels."	[See page 1] **AVI export (keep original & regular compression) with audio** **Client application audio notifications by alarm events** **Broadcast server archive playback** **Notification for lost camera signal** **Intuitive user interface requires little to no training** **Broadcast server allows for remote viewing from mobile devices** [See page 37] **Exclusion Tab-** If you are still getting motion from lights, trees or things moving from an air-conditioner or an open door then you can click on exclusion and block the object out from the motion detection grid. You simply click on the grid boxes around the object that you would like to exclude, to remove them from being seen by the motion detection engine in the GANZ ZNS NVR.	Ganz ZNS NVR server supports externally derived operator commands like alarms, video lost, sending notification, email *etc*. http://ganzsecurity.com/product/276/ZNS%20Series http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

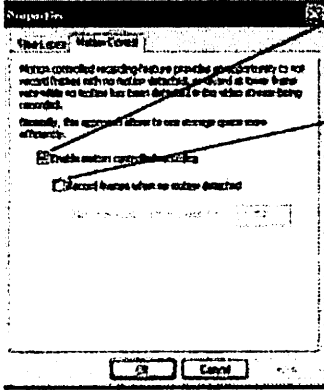# HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

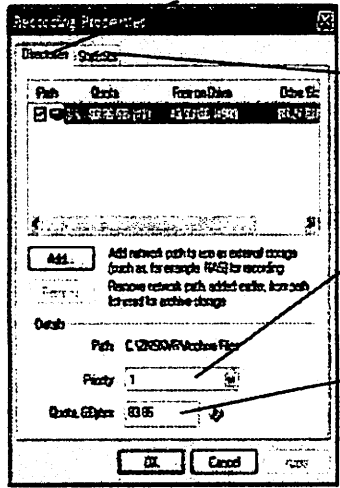| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
the high-capacity storage media, and	*(3:64– 67)* "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or <u>disk-based</u>, or both tape-based and <u>disk-based data recording means</u>." *(3:30– 40)* "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of disk storage devices, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules. Images are preferably stored as a succession of data-compressed representations, corresponding to various window sizes sampled at diverse update rates; however, though the image representations need not be identical to the sizes and rates used for video monitors displaying the various images."	[See page 2] | Storage (SATA-3Gb/s-7200 RPM)	Hot Swap 6TB – 15TB Internal	Hot Swap 18TB-36TB Internal	Hot Swap 39TB-84TB Internal
Graphics Card	128 bit/1GB (HDMI/DVI/VGA)		
CPU	Intel i7 (4770 Quad Core)		
RAM	8GB fully buffered		
Dimensions (W x D x H)	17" x 26" x 5.2"	17" x 26" x5.2"	17.1" x 27.5" x7"		Ganz ZNS NVR server supports high capacity storage for video images. http://ganzsecurity.com/resources/files_v2/719/ZNR_RAID_Lite_0814.pdf
wherein the computer is programmed to perform the following functions:	Usage of computer previously established	Preamble to the next set of claim elements	No evidence required

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels,	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." *(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions."	[See page 11] 	Ganz ZNS NVR server supports displaying of different images on monitor screen with camera setup and image adjustment for updated rate and dimension of pixels. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

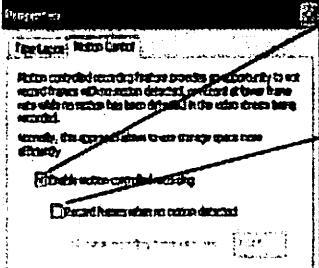# HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

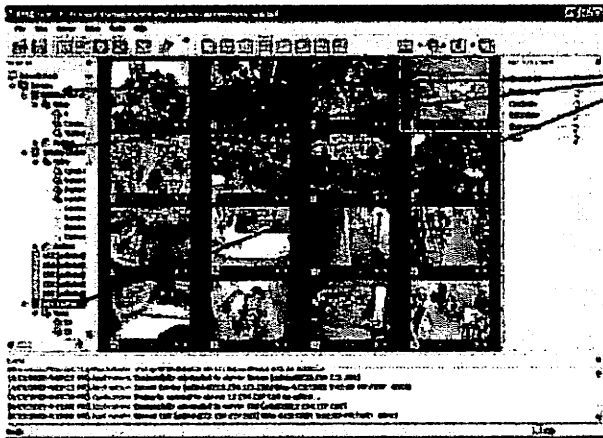| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
varythe dimensions and the ratespatial parameters and temporal parameters at which a particular image is updated in its window in accordance with one of the externally derived commands,	(6:34– 40) "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." (8:28– 42) "It will be appreciated that in any of these implementations, alarm or sensor signals may be utilized to automatically re-configure the system operating mode, as, for example, increasing the frame rate or image size for an image source associated with the sensor which has initiated the alarm signal condition. As explained above, the displayed windows and image sizes may be reconfigured into an operating mode different from the reconfiguration of the digital storage mode. If desired, the operator may choose to allow the system to automatically adjust the compression ratio utilized for a particular window in response to alarm signal conditions. Alternatively, the compression ratio may be adjusted in response to the selection by the operator of a particular window for closer monitoring, by switching to an image window having larger dimensions in pixels."	**[See page 31]** **Dimensions-** Here you can **change your image resolution**. Note: The larger the resolution size you choose the slower your frame rate may become. Also, the larger the image quality the more space it requires. **Color Mode-** Here you can choose to turn your color cameras into Black and White. This is chosen sometimes to save storage space. **Image Adjustment-** You can change these settings here, or you can change them from your "Toggle Video Amplification Pane" at a later time. **Frame Resolution-** The default settings are recommended, but you have the option to choose your format (NTSC, PAL, *etc.*) and your resolution size. **[See page 39]** Motion Control Recording: Motion Control Recording can be accessed: -Right click on your server -Choose Tasks -Camera setup Wizard -Data recording -Advanced properties	Ganz ZNS NVR server supports change in video attributes in which spatial (image ratio, resolution) and temporal (frame rate) parameters of images can be varied through externally derived commands. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

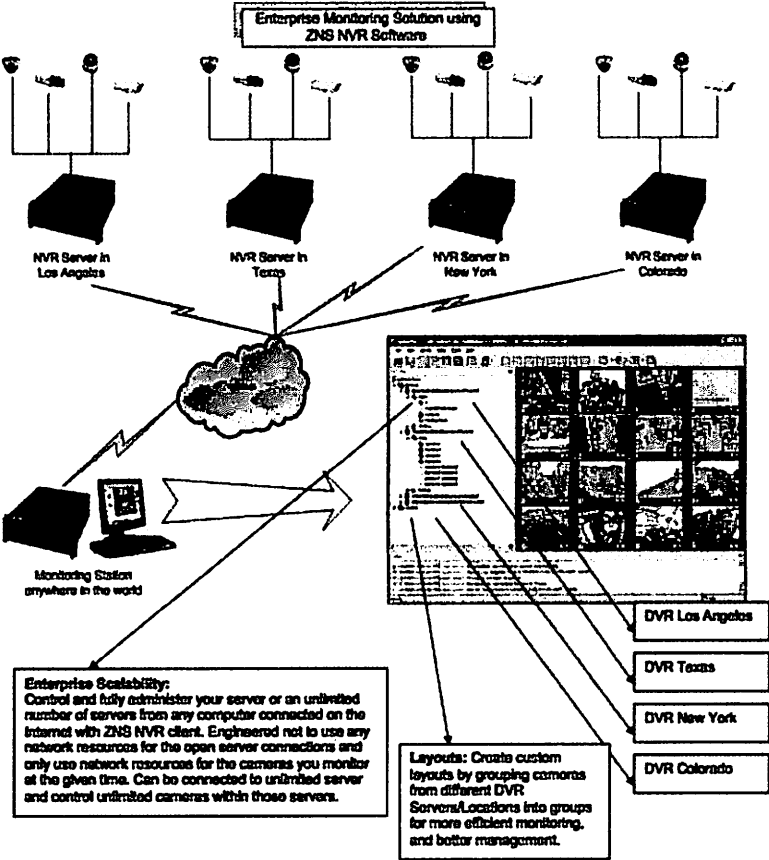| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
store the digitally compressed images in the high-capacity storage ~~medium~~*media*, and	**(3:64–67)** "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or <u>disk-based</u>, or both tape-based and <u>disk-based data recording means</u>." **(3:30–40)** "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of <u>disk storage devices</u>, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules. Images are preferably stored as a succession of data-compressed representations, corresponding to various window sizes sampled at diverse update rates; however, though the image representations need not be identical to the sizes and rates used for video monitors displaying the various images" **(6:22–33)** "An additional feature is the capability to implement a dual-recording-media option. This facility provides the ability to record simultaneously both on a tape (for high capacity, long term storage) and also on a removable media, such as a removable hard disk (i.e. PCMCIA) or magneto-optical disk (for short-term storage of up to 24 hours of images). These disks facilitate high-speed searching of recorded information without interrupting the tape, as well as providing a back up for the recording on the tape. In addition, the system is capable of simultaneously searching the recorded images on the disk storage unit while continuing to store images on the tape storage unit."	[See page 21]	Ganz ZNS NVR server supports high capacity storage for digitally compressed images. <u>http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf</u>

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

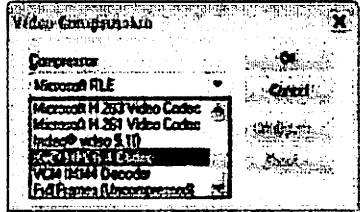| Independent Claim No. 1	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
vary the ~~dimensions and the rate~~*spatial parameters and temporal parameters* at which a particular image is stored in accordance with one of the externally derived commands.	*(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." *(8:28– 42)* "It will be appreciated that in any of these implementations, alarm or sensor signals may be utilized to automatically re-configure the system operating mode, as, for example, increasing the frame rate or image size for an image source associated with the sensor which has initiated the alarm signal condition. As explained above, the displayed windows and image sizes may be reconfigured into an operating mode different from the reconfiguration of the digital storage mode. If desired, the operator may choose to allow the system to automatically adjust the compression ratio utilized for a particular window in response to alarm signal conditions. Alternatively, the compression ratio may be adjusted in response to the selection by the operator of a particular window for closer monitoring, by switching to an image window having larger dimensions in pixels."	**[See page 1]** Client application audio notifications by alarm events Broadcast server archive playback Notification for lost camera signal Intuitive user interface requires little to no training **[See page 37]** Exclusion Tab- If you are still getting motion from lights, trees or things moving from an air-conditioner or an open door then you can click on exclusion and block the object out from the motion detection grid. You simply click on the grid boxes around the object that you would like to exclude, to remove them from being seen by the motion detection engine in the GANZ ZNS NVR. **[See page 39]** Motion Control Recording: Motion Control Recording can be accessed: -Right click on your server -Choose Tasks -Camera setup Wizard -Data recording -Advanced properties Enable Motion control recording to save disk space and make playback more efficient. Enable recording when motion is not detected at selected frame rate. When Motion occurs recording frame rate goes to maximum automatically.	Ganz ZNS NVR server supports change in video attributes in which spatial (image ratio, resolution) and temporal (frame rate) parameters of images can be varied through externally derived commands. http://ganzsecurity.com/product/276/ZNS%20Series http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf Page 12 of 30

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 12	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
The method of simultaneously displaying and storing multiple video images, comprising the steps of:	*(4:37-44)* "The present invention implements a …video monitoring system … employing display windowing software… The preferred recording medium…" *(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." *(4:37–41)* "…an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression."	[See page 5] **The Ganz ZNS NVR (ZNS-NVR) is a digital video recording and remote surveillance software package for Windows.** The ZNS NVR accepts video streams from all major Network IP cameras and servers, Frame Grabbers and any Direct Show compatible devices including Webcams and USB cameras. This along with the ZNS NVR client-server architecture allows you to build fully scalable solutions ranging from a single camera up to thousands of cameras. [See page 13] **The ZNS NVR Client Application is the component to monitor live and recorded video from several ZNS NVR servers.** Also the ZNS NVR Client is the main tool to manage and configure local and remote ZNS NVR servers. 	Ganz ZNS NVR records and displays the videos on the monitor. http://ganzsecurity. com/resources/files v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

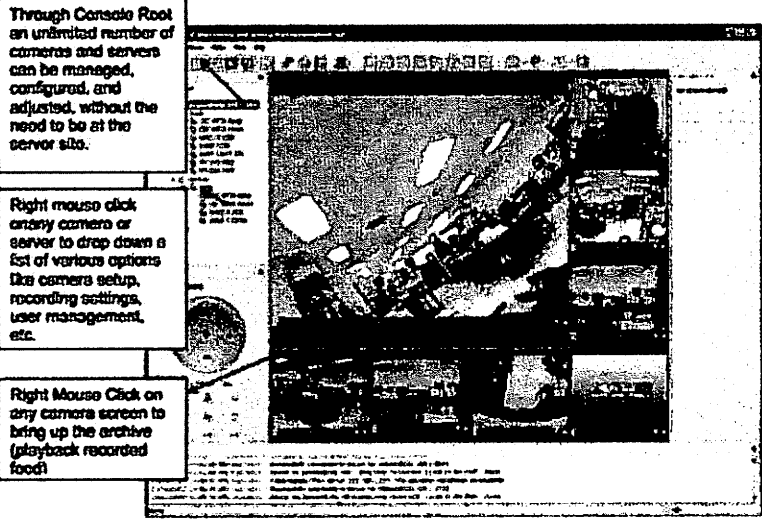| Independent Claim No. 12	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
receiving video images *at a personal computer based system* from a ~~plurality of~~*one or more* sources;	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical. *(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression."	[See page 14] 	Ganz ZNS NVR server provides video images to computer monitor from plurality of cameras. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

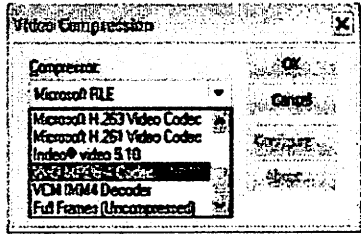# HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 12	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
digitizing~~one or more~~*any* of the images ~~if~~ not already in digital form *using an analog-to-digital converter*;	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical. *(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression."	[See page 6] **Network camera, IP addressable camera, and IP Camera, all refer to the same type of camera**, which is a digital camera that can be directly connected to the Internet or network through a CAT5 or Wi-Fi connection. Network cameras send already digitized and compressed video streams. [See page 45] *Figure 29. Video Compression* 4. Click *Make AVI.* If no records are available for the selected range of dates or times a warning will be displayed. 5. In the *Save as* window type in a file name for your new AVI file, then click Save. If "Codec List" was selected under "Video Compression" the drop-down list of available codecs will appear. Select a codec from the list to proceed. 6. The AVI Maker will begin to create the AVI and show the progress in the progress bar. Optionally, click Stop to terminate the process earlier than the end date/time set under *Date/Time.*	Ganz ZNS NVR server utilizes Codec for digitizing of video images. http://ganzsecurity. com/resources/files v2/423/ZNS-NVR-manual0108.pdf http://ganzsecurity. com/resources/files v2/377/MP%20Se ries_manual0308.p df

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

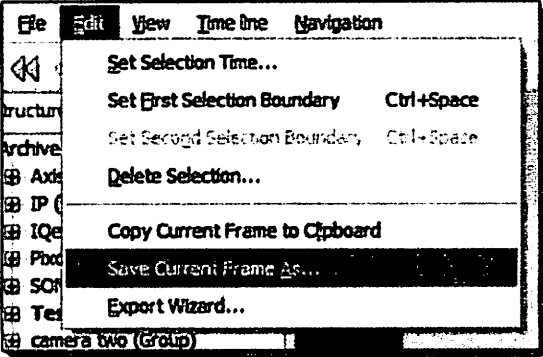| Independent Claim No. 12	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
displaying at least certain of the digitized images in separate windows on a *personal computer based* display device, using a first set of temporal and spatial parameters associated with each image in each window;	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical. *(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(4:64-65)* "Fig. 1 shows a computer monitor display for a system configured in accordance with Mode I as listed in Fig. 15."	[See page 11] Through Console Root an unlimited number of cameras and servers can be managed, configured, and adjusted, without the need to be at the server site. Right mouse click on any camera or server to drop down a list of various options like camera setup, recording settings, user management, etc. Right Mouse Click on any camera screen to bring up the archive (playback recorded feed)	Ganz ZNS NVR software support displaying of different images on the monitor screen with camera setup and image adjustment for rate and dimension of pixels. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

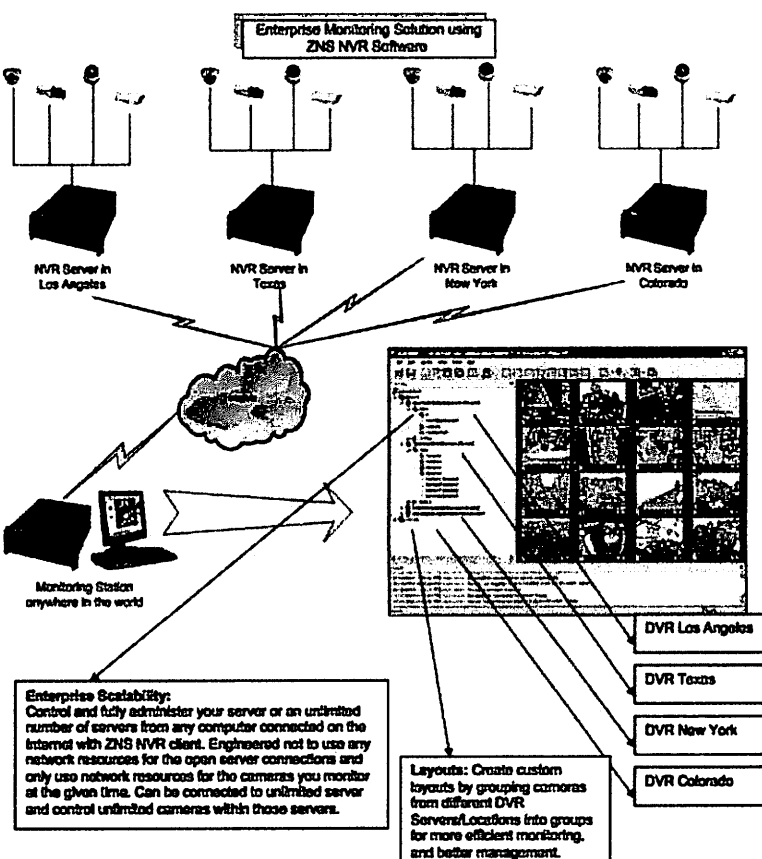| Independent Claim No. 12	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
~~simultaneously storing the displayed images~~ *converting one or more of the video source images into a data storage format using a second set of temporal and spatial parameters associated with each image; and*	*(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." **Note:** *The computer storage format is a "container" for the audio and video information, which is encoded in some compression codec. Popular computer storage formats include MOV, AVI, etc.* *This claim element deals with converting a video file which has been compressed according to some established codec (like H.264), into a computer-readable container file (like MOV, or Quicktime).*	**[See page 45]** *Figure 29. Video Compression* 4. Click *Make AVI.* If no records are available for the selected range of dates or times a warning will be displayed. 5. In the *Save as* window type in a file name for your new AVI file, then click Save. If "Codec List" was selected under "Video Compression" the drop-down list of available codecs will appear. Select a codec from the list to proceed. 6. The AVI Maker will begin to create the AVI and show the progress in the progress bar. Optionally, click Stop to terminate the process earlier than the end date/time set under *Date/Time.*	Ganz ZNS NVR server converts video images in different storage format with the help of Codec. http://ganzsecurity.com/resources/files_v2/377/MP%20Series_manual0308.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

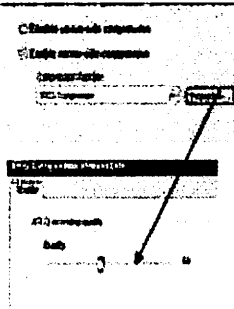| Independent Claim No. 12	HAWK USP RE43,462 E	Product Disclosure	Comments & Reference
simultaneously storing the converted images in a storage device.	(3:64– 67) "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or <u>disk-based</u>, or both tape-based and <u>disk-based data recording means</u>." (3:30– 40) "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of disk storage devices, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules. Images are preferably stored as a succession of data-compressed representations, corresponding to various window sizes sampled at diverse update rates; however, though the image representations need not be identical to the sizes and rates used for video monitors displaying the various images."	[See page 44] First pause the video on the picture that you would like to copy, Click on edit Choose "save current frame as..." Pick a location and filename for your image and Click save. File Edit View Time line Navigation Set Selection Time... Set First Selection Boundary Ctrl+Space Set Second Selection Boundary Ctrl+Space Delete Selection... Copy Current Frame to Clipboard Save Current Frame As... Export Wizard...	Ganz ZNS NVR server converts video images in desired format and store them in a storage device. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

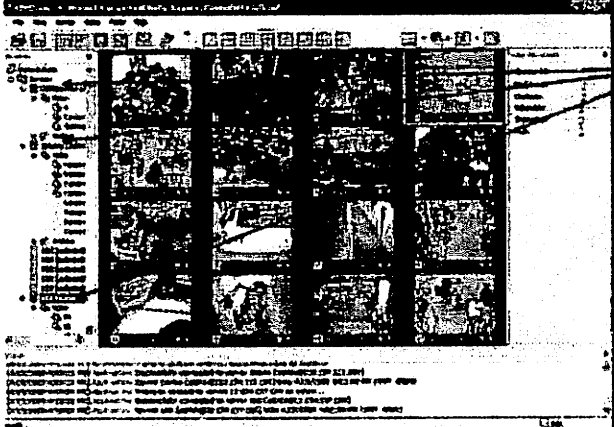| Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
A video storage and display system, comprising:	**(4:37-44)** "The present invention implements a ...video monitoring system ... employing display windowing software... The preferred recording medium..." **(Abstract, II. 1-8)** "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." **(4:64-65)** "Fig. 1 shows a computer monitor display for a system configured in accordance with Mode I as listed in Fig. 15."	[See page 5] **The Ganz ZNS NVR (ZNS-NVR) is a digital video recording and remote surveillance software package for Windows.** The ZNS NVR accepts video streams from all major Network IP cameras and servers, Frame Grabbers and any Direct Show compatible devices including Webcams and USB cameras. This along with the ZNS NVR client-server architecture allows you to build fully scalable solutions ranging from a single camera up to thousands of cameras. [See page 13] **The ZNS NVR Client Application is the component to monitor live and recorded video from several ZNS NVR servers.** Also the ZNS NVR Client is the main tool to manage and configure local and remote ZNS NVR servers.	Ganz ZNS NVR records and displays the videos on the monitor. http://ganzsecurity. com/resources/files _v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
a plurality of one or more video cameras, each outputting a signal representative of a video image;	**(2:66–3:3)** "…an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." **(4:37-41)** "…an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." **(Abstract, II. 1-8)** "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical."	[See page 14] 	Ganz ZNS NVR server receives video images from various cameras. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
means to receive the signals from each camera and digitally compress the images; and	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." *(2:66–3:3)* "...an automated video monitoring system by way of a PC-based platform employing display windowing software, <u>with camera sources being interfaced</u> to an input circuit board which includes provisions for image data compression." *(4:37-41)* "...an automated video monitoring system by way of a PC-based platform employing display windowing software, <u>with camera sources being interfaced</u> to an input circuit board which includes provisions for image data compression."	[See page 34] <u>Video Compression</u> Enable Server Side Compression- Compresses video according to the compression you choose. The ZNS NVR continuously integrates compressions so feel free to check here every so often. 	Ganz ZNS NVR server compresses video images received from plurality of cameras. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
a computer configured to receive the digitally compressed images, the computer being interfaced to the following devices:	*(3:54-57)* "It is an object of the invention to provide a more efficient method for monitoring camera outputs by means of a multiple-window display system <u>implemented on a computer platform</u>." *(3:58-63)* "It is another object of the invention to provide an improved recording system for event-logging or security applications, ... and further <u>to implement this system on a computer platform</u>." *(4:37-41)* "...an automated video monitoring system by way of a PC-based platform employing display windowing software, <u>with camera sources being interfaced</u> to an input circuit board which includes provisions for image data compression."	**[See page 6]** Network camera, IP addressable camera, and IP Camera, all refer to the same type of camera, which is a digital camera that can be directly connected to the Internet or network through a CAT5 or Wi-Fi connection. **Network cameras send already digitized and compressed video streams.** **[See page 13]** 	Ganz ZNS NVR server provides digitally compressed image to computer monitor for display. <u>http://ganzsecurity.com/resources/files v2/423/ZNS-NVR-manual0108.pdf</u>

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
a display screen,	*(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(4:64-65)* "Fig. 1 shows a computer monitor display for a system configured in accordance with Mode I as listed in Fig. 15."	[See page 5] 	Ganz ZNS NVR supports the display of images on monitor screen. http://ganzsecurity. com/resources/files v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
means to receive externally derived operator commands including means for sensing a deviation from the normal-state image scene associated with at least one of the video cameras, the existence of the deviation being used as the basis for generating an externally derived command, and	*(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." *(8:28– 42)* "It will be appreciated that in any of these implementations, alarm or sensor signals may be utilized to automatically re-configure the system operating mode, as, for example, increasing the frame rate or image size for an image source associated with the sensor which has initiated the alarm signal condition. As explained above, the displayed windows and image sizes may be reconfigured into an operating mode different from the reconfiguration of the digital storage mode. If desired, the operator may choose to allow the system to automatically adjust the compression ratio utilized for a particular window in response to alarm signal conditions. Alternatively, the compression ratio may be adjusted in response to the selection by the operator of a particular window for closer monitoring, by switching to an image window having larger dimensions in pixels."	**[See page 1]** **AVI export (keep original & regular compression) with audio** **Client application audio notifications by alarm events** **Broadcast server archive playback** **Notification for lost camera signal** **Intuitive user interface requires little to no training** **Broadcast server allows for remote viewing from mobile devices** **[See page 37]** **Exclusion Tab-** If you are still getting motion from lights, trees or things moving from an air-conditioner or an open door then you can click on exclusion and block the object out from the motion detection grid. You simply click on the grid boxes around the object that you would like to exclude, to remove them from being seen by the motion detection engine in the GANZ ZNS NVR.	Ganz ZNS NVR server supports externally derived operator commands like alarms, video lost, sending notification, email *etc.* which is triggered on sensing a deviation from normal state image. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

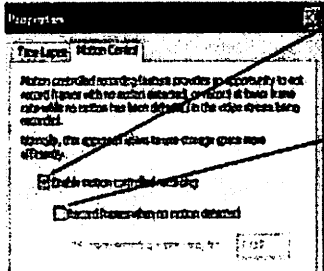# HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

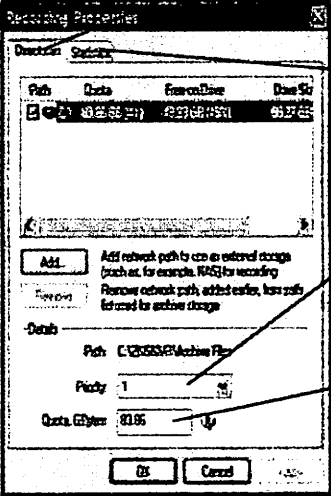| Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
a high-capacity storage medium, and	**(3:64– 67)** "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or <u>disk-based</u>, or both tape-based and <u>disk-based data recording means</u>." **(3:30– 40)** "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of disk storage devices, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules. Images are preferably stored as a succession of data-compressed representations, corresponding to various window sizes sampled at diverse update rates; however, though the image representations need not be identical to the sizes and rates used for video monitors displaying the various images."	[See page 2] <table><tr><td>Storage (SATA-3Gb/s-7200 RPM)</td><td>Hot Swap 6TB – 15TB Internal</td><td>Hot Swap 18TB-36TB Internal</td><td>Hot Swap 39TB-84TB Internal</td></tr><tr><td>Graphics Card</td><td colspan="3">128 bit/1GB (HDMI/DVI/VGA)</td></tr><tr><td>CPU</td><td colspan="3">Intel i7 (4770 Quad Core)</td></tr><tr><td>RAM</td><td colspan="3">8GB fully buffered</td></tr><tr><td>Dimensions (W x D x H)</td><td>17" x 26" x 5.2"</td><td>17" x 26" x5.2"</td><td>17.1" x 27.5" x7"</td></tr></table>	Ganz ZNS NVR server supports high capacity storage for video images. http://ganzsecurity.com/resources/files_v2/719/ZNR_RAID_Lite_0814.pdf
wherein the computer is programmed to perform the following functions:			

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

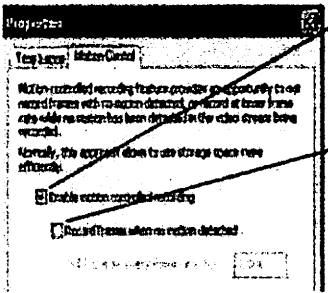| Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
display the digitally compressed images from the cameras in different windows on the display screen, each window being associated with an update rate and dimensions in pixels,	*(Abstract, ll. 1-8)* "A PC-based system for monitoring and storing representative images from video cameras may be utilized for security or other monitoring applications. Camera inputs from digital or analog sources are individually and independently digitized and displayed at a first set of image sizes, sampling rates, and frame rates, and may be stored in digital form on various recording media at a second set of image sizes, sampling rates, and frame rates, and these two sets of sizes and rates may or may not be identical." *(2:66– 3:3)* "The present invention implements an automated video monitoring system by way of a PC-based platform employing display windowing software, with camera sources being interfaced to an input circuit board which includes provisions for image data compression." *(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions."	[See page 11] 	Ganz ZNS NVR server support displaying of different images on monitor screen with camera setup and image adjustment for updated rate and dimension of pixels. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
vary~~the dimensions and the rate~~*spatial parameters and temporal parameters* at which a particular image is updated in its window in accordance with one of the externally derived commands,	*(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." *(8:28– 42)* "It will be appreciated that in any of these implementations, alarm or sensor signals may be utilized to automatically re-configure the system operating mode, as, for example, increasing the frame rate or image size for an image source associated with the sensor which has initiated the alarm signal condition. As explained above, the displayed windows and image sizes may be reconfigured into an operating mode different from the reconfiguration of the digital storage mode. If desired, the operator may choose to allow the system to automatically adjust the compression ratio utilized for a particular window in response to alarm signal conditions. Alternatively, the compression ratio may be adjusted in response to the selection by the operator of a particular window for closer monitoring, by switching to an image window having larger dimensions in pixels."	[See page 31] **Dimensions**- Here you can **change your image resolution**. Note: The larger the resolution size you choose the slower your frame rate may become. Also, the larger the image quality the more space it requires. **Color Mode**- Here you can choose to turn your color cameras into Black and White. This is chosen sometimes to save storage space. **Image Adjustment**- You can change these settings here, or you can change them from your "Toggle Video Amplification Pane" at a later time. **Frame Resolution**- The default settings are recommended, but you have the option to choose your format (NTSC, PAL, *etc.*) and your resolution size. [See page 39] Motion Control Recording: Motion Control Recording can be accessed: -Right click on your server -Choose Tasks -Camera setup Wizard -Data recording -Advanced properties Enable Motion control recording to save disk space and make playback more efficient. Enable recording when motion is not detected at selected frame rate. When Motion occurs recording frame rate goes to maximum automatically.	Ganz ZNS NVR server supports change in video attributes in which spatial (image ratio, resolution) and temporal (frame rate) parameters of images can be varied through externally derived commands. http://ganzsecurity. com/resources/files v2/423/ZNS-NVR-manual0108.pdf

HAWK TECHNOLOGY SYSTEMS, LLC v. PIGGLY WIGGLY, LLC

Independent Claim No. 15	HAWK USP RE43,462	Product Disclosure	Comments & Reference
store the digitally compressed images in the high-capacity storage medium, and	**(3:64– 67)** "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or disk-based, or both tape-based and disk-based data recording means." **(3:30– 40)** "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of disk storage devices, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules. Images are preferably stored as a succession of data-compressed representations, corresponding to various window sizes sampled at diverse update rates; however, though the image representations need not be identical to the sizes and rates used for video monitors displaying the various images" **(6:22– 33)** "An additional feature is the capability to implement a dual-recording-media option. This facility provides the ability to record simultaneously both on a tape (for high capacity, long term storage) and also on a removable media, such as a removable hard disk (i.e. PCMCIA) or magneto-optical disk (for short-term storage of up to 24 hours of images). These disks facilitate high-speed searching of recorded information without interrupting the tape, as well as providing a back up for the recording on the tape. In addition, the system is capable of simultaneously searching the recorded images on the disk storage unit while continuing to store images on the tape storage unit."	[See page 21] Statistics- Here you can check on used space and available space left on the hard drives being used by GANZ ZNS NVR. Priority- Your priority option is for you to choose which of your drives records first. You must first check and then highlight (by clicking one time) the drive you wish to customize in this portion Quota - Here you choose the amount of space you would like to designate for storage on that particular hard drive. NOTE: NEVER, choose 100% for the C Drive. This may cause your machine to eventually crash due to no available virtual memory for page.	Ganz ZNS NVR server supports high capacity storage for digitally compressed images. http://ganzsecurity.com/resources/files_v2/423/ZNS-NVR-manual0108.pdf

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vary the ~~dimensions and the rate~~ *spatial parameters and temporal parameters* at which a particular image is stored in accordance with one of the externally derived commands.	*(3:64– 67)* "It is a further object of the invention to provide extended recording time for event-logging or security applications by means of either tape-based, or <u>disk-based</u>, or both tape-based and <u>disk-based data recording means</u>." *(3:30– 40)* "Storage of images may be implemented by way of a tape back-up device, such as a DAT or 8-mm tape recorder, which are capable of storing as much as 960 hours of monitoring images, or by way of <u>disk storage devices</u>, preferably including removable disk drives such as magneto-optical disks or PCMCIA-compatible disk-drive modules. Images are preferably stored as a succession of data-compressed representations, corresponding to various window sizes sampled at diverse update rates; however, though the image representations need not be identical to the sizes and rates used for video monitors displaying the various images" *(6:34– 40)* "It should be noted that there is no requirement that the image sizes or frame rates utilized for the video display match those utilized for the storage media. In practice, these two specifications may not agree, and will be determined by other factors, such as operator manipulation of the displayed image sizes or changes resulting from the detection of alarm conditions." *(10:38– 45)* "If desired, the operator may choose to allow the system to automatically adjust the compression ratio utilized for a particular window in response to alarm signal conditions. Alternatively, the compression ratio may be adjusted in response to the selection by the operator of a particular window for closer monitoring, by switching to an image window having larger dimensions in pixels."	[See page 37] **Exclusion Tab-** If you are still getting motion from lights, trees or things moving from an air-conditioner or an open door then you can click on exclusion and block the object out from the motion detection grid. You simply click on the grid boxes around the object that you would like to exclude, to remove them from being seen by the motion detection engine in the GANZ ZNS NVR. [See page 39] **Motion Control Recording:** Motion Control Recording can be accessed: -Right click on your server -Choose Tasks -Camera setup Wizard -Data recording -Advanced properties Enable Motion control recording to save disk space and make playback more efficient. Enable recording when motion is not detected at selected frame rate. When Motion occurs recording frame rate goes to maximum automatically.	Ganz ZNS NVR server supports change in video attributes in which spatial (image ratio, resolution) and temporal (frame rate) parameters of images can be varied through externally derived commands. http://ganzsecurity. com/resources/files _v2/423/ZNS-NVR-manual0108.pdf