

Description:

An Internal Gun Bore Scanner for inspecting and recording the internal bore condition of the Howitzer, Main Battle Tank and Gun Barrel with diameter ranging from 76mm to 240 mm. It allows the inspector to check and capture detailed information of any fouling, nicks, corrosion, major blemishes, heat- cracking and erosion or excessive wear of the surface of the Howitzer Gun Barrel and their exact location in the laptop computer, notebook or portable personal computer (PPC).

BACKGROUND OF THE INVENTION

The present invention relates to an Internal Gun Barrel Surface Scanner, used for scanning and inspecting the surface and the rifling of Howitzer and Main Battle Tank and gun barrel with diameter ranging from 76 mm to 240 mm, and allowing the condition of the surface of the said barrels to be captured on the laptop computer, notebook computer or portable personal computer for documenting purposes via a wireless view cam or miniature camera.

The said scanner will capture detailed information of any fouling, nicks, pitting, scourge, rifling-lifted, corrosion, major blemishes, heat- cracking and erosion or excessive wear of the surface of the Howitzer Gun Barrel and its exact location in the laptop computer.

The bore of the gun barrel needs to be checked or inspected quarterly for "Fit for Firing" and this in accordance with the Preventive Maintenance and Corrective Serviceability Instructions, and has been adopted by most armed forces worldwide.

Inspection of the surface of the Gun Barrel Surface has always been a tedious process and uphill tasks for soldiers. The current visual inspection is not effective as inaccessible centre portion of the barrel does not provide sufficient light to aid in the visual inspection. In order to provide a proper inspection of the condition of the said Gun Barrels, including the full use of a typical human's depth perception by the use of both of their eyes, it is important that the condition of the surface of the Gun Barrel be documented during the inspection.

An apparatus or device be of such a configuration is of utmost importance that a person can utilize the said apparatus or device to determine the exact location of the obstruction and/or the defect of the said barrel and have it documented in the computer during the inspection.



There are certain problems in the Gun Barrel which have been inherent prior to preservation and hence, preservation of said guns without proper documentation of the condition of the barrel surface has led to many unpleasant disputes between the Armed Forces and their contractors

The inventor had personally experienced said disputes and it had motivated the inventor to develop a system to resolve above said dispute which resulted in the said invention.

Summary of Invention

It is the object of the present invention to provide an inexpensive internal bore scanner for inspecting the internal bore surface of the Howitzer and Main Battle Tank. It is further object of the said invention to provide an internal bore scanner that is portable, lightweight, compact and capable of being put into use at any storage site even without the presence of alternating current supply.

It is yet a further object of the present invention to provide a bore scanner that allows visual inspection, recording and documenting the surface condition of the gun barrel in a laptop computer, notebook computer or portable computer.

In an embodiment of the invention wherein bore scanner allows the inspector to evaluate the condition of the bore of the barrel for scratches, pits, erosion, heat-cracking, copper and powder fouling, corrosion or other anomalies.

In another embodiment of the invention, it allows the internal bore surface condition of Gun Barrel to be captured via the wireless I.P. camera and have it recorded and documented in the laptop computer.

In another further embodiment of the invention it allows the real time image monitoring software of the scanner supports up to 12 Bore Scanners to capture images simultaneously using a single Notebook or Portable Personal Computer.

In another further embodiment of the invention, the scanner wireless IP camera allows remote access from any Web browser for real time image viewing through the Internet.

Detailed Description of the Invention

In accordance with this invention, it is an object of the invention to provide detailed information and the description of drawings of the Internal Gun Bore Scanner.

Although the invention will be described by way of examples hereinbelow for specific embodiments having certain features, it must also be realized that minor modifications that do not require undo experimentation on the part of the practitioner are covered within the scope and breadth of this invention. Additional advantages and other novel features of the present invention will be set forth in the description that follows and in particular will be apparent to those skilled in the art upon examination or may be learned within the practice of the invention.

Therefore, the invention is capable of many other different embodiments and its details are capable of modifications of various aspects which will be obvious to those of ordinary skill in the art all without departing from the spirit of the present invention. Accordingly, the rest of the description will be regarded as illustrative rather than restrictive.

The detailed information and description of drawings are herein described.

According to the invention shown in figure 1, the Internal Bore Gun Barrel Scanner consists of Wireless I.P. Camera, Extendable Inspection pole, Tripod-like Pole Centering Device, Portable Maintenance Free Dry Battery and Portable Personal Computer.

Figure 2 shows how the extendable inspection pole is assembled via the male and female threaded pipe.

Figure 3 shows the process of how the Tripod-like Pole Centering Device is slogged onto the inspection pole.

Figure 4 shows the mounting of the Wireless I.P. Camera on the front end of the inspection pole powered by built-in dry cells.

Figure 5 shows the complete assembly of the Internal Bore Barrel Scanner.

Figure 6 shows the 360° scanning process of the Internal Bore Barrel Scanner with the aid of the pole-centering device.

Figure 7 shows how the inspection of the back portion of the Bore of gun barrel is carry out via the Breech Block.

Figure 8 shows how the inspection of the front portion of the Bore of gun barrel is carry out.

Figure 9 shows how up to 12 bores of the gun barrel can be inspected simultaneously via the scanner system software.

Figure 10 shows how the Internal Gun Bore Scanner wireless IP camera allows remote access from any Web browser for real time image viewing through the Internet

Claims

What is claimed is:

1. An Internal Gun Bore Scanner for the inspection of the bore surface of Howitzer, Main Battle Tank and Gun Barrel with diameter ranging from 76mm to 240mm.
2. An internal Gun Bore Scanner consisting of wired or wireless camera, an inspection pole, a tripod-like pole centering device, a portable battery and a laptop computer or portable personal computer.
2. An Internal Gun Bore scanner that is portable, lightweight, compact and capable of being put into use at any storage site even without the presence of alternating current supply.
3. An Internal Gun Bore Scanner as in claimed 1 wherein the said scanner is scalable.
4. An Internal Bore Scanner as in claimed 3 wherein the real time image monitoring software of the scanner supports up to 12 Bore Scanners to capture images simultaneously using a single Notebook or Portable Personal Computer or Mobile Phone with an operating system software.
5. An Internal Gun Bore Scanner as in claimed 4 wherein the each Bore Scanners consists of a wireless camera and a portable battery compartment mounted on the front end of the inspection pole.
6. An Internal Gun Bore Scanner as in claimed 5 wherein scanner wireless IP camera allows remote access from any Web browser for real time image viewing through the Internet.
7. The measurement or the size of the above mentioned cameras ranges from 0.2 cm to 6 cm in length.
8. An Internal Gun Bore Scanner as in claimed 1 wherein the inspection pole can be telescopic, extendable or a single pole of fixed length.
9. An Internal Gun Bore Scanner as in claimed 9 wherein the said poles' length ranges from 1 meter to 10 meters.

10. An Internal Gun Bore Scanner as in claimed 1 wherein the tripod-like pole centering device is designed for use for bore diameter ranging from 76 mm to 240 mm by means of adjustable support stand.
11. An Internal Gun Bore Scanner as in claimed 11 wherein the outer support stands of the tripod-like centering device are mounted with ball bearings.
13. An Internal Gun Barrel Scanner as in claimed 1 wherein the tripod-like pole centering device can be made from metal, wood, plastic, composite and from a combination of said materials.
14. An Internal Gun Bore Scanner as in claimed 1 wherein the portable battery is either a wet cell battery or a dry cell maintenance free battery.
15. An Internal Gun Bore Scanner as in claimed 1 wherein the laptop computer is used for storing the information of the condition of the surface of the barrel during and after the barrel inspection.
16. A Internal Gun Bore Scanner as in claimed 13 wherein a wireless USB transmitter and receiver is connected to the Notebook, or Laptop or PC or Mobile Phone to communicate with the Wireless Camera based Bore Cleaners.
17. An Internal Gun Bore Scanner wherein the Internet Protocol (IP) camera is powered by D.C. Battery.
18. An Internal Gun Bore Surface Scanner as in claimed 1 wherein the portable battery is also used to power the laptop computer in the event the battery of said computer is flat.
19. An Internal Gun Bore Scanner as in claimed 8 wherein the materials of the said poles can be made from plastics, wood, composite, metals and its alloys or combination of said materials.
20. An Internal Gun Bore Scanner as in claimed 3 wherein the wireless web camera or the miniature camera operates using software operating on following system; Windows, Macintosh and/or Linux.
21. An Internal Gun Bore Scanner as in claimed 1 wherein the said device is use for scanning the bore via the breech block and the front of the Gun Barrel.