Removal of Fouling, Jacket, and Driving Band Deposition and De-Coppering of Cannon and Gun Barrels with New, Automated, Sealed-System Bore Cleaning Machine

Authors:
Paavo J. Sorvakko, Ross A. Duckworth

Joint Armaments Conference
Seattle, Washington, 17 May 2012
WHY ARE WE STILL USING THIS?
Accessories: Adapters, Chamber brush, Barrel brush
### Copper Removal solvent Laboratory Test Results

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16% Solution of:

- Ammonium Oxalate
- Sodium Hydroxide
- Hydrogen Peroxide
- Citric Acid (Buffer)
AUTOMATIC PUMP UNIT with cleaner solvent tank and filter

Muzzle end hose and adapter

Brush movement powered by solvent pressure

Breech end hose and adapter
Simultaneous chamber and barrel cleaning

Chamber Brush Stroke

Barrel Brush Stroke

PRESSURE DIRECTION L

PRESSURE DIRECTION R
The Brush moves with the pressurized solvent flow. When reaching the end of the barrel, the flow direction is automatically reversed.

NOTE: For smaller weapons, from 40mm down, the brush movement is mechanical.
METHOD AND SYSTEM FOR CLEANING AN ARTILLERY GUN BARREL

M36

Inventor: Kaleervo Pullainen, Jyväskylä (FI)
Assignee: Ceca Company Ltd Oy, Luvia (FI)

Notice: Subject to any disclaimer, this term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 325 days

Appl. No.: 12/086,224
PCT Filed: Jan. 19, 2007
PCT No.: PCT/FI/2007/00030
§ 371(c)(1), (2), (4) Date: Jan. 4, 2008
PCT Publ. No.: WO2007/085093
PCT Publ. Date: Aug. 2, 2007

Prior Publication Data

Foreign Application Priority Data
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Int. Cl. C23G 1/09 (2006.01)

U.S. Cl. 134/2, 134/6

Field of Classification Search: 134/2, 3, 134/6, 8, 22.1, 22.11, 40.4, 41.42
See application file for complete search history.

References Cited
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Machine Translation: IF 0305-165411A to Sittler et al. 2005 *

Primary Examiner — Michael Korukov
Assistant Examiner — Eric Golightly

ABSTRACT
The invention relates to a method for cleaning an artillery gun barrel, which is cleaned of gun oil, greases, or combustion residues using a washing liquid and a brush element. The brush element is moved backwards and forwards in the barrel with the aid of the washing liquid. In addition, copper is cleaned out of the simultaneously in the same process. The invention also relates to a system for cleaning an artillery gun barrel.

14 Claims, 1 Drawing Sheet
155 mm BARREL CLEANER IN OPERATION
Stationary (depot-type) cleaner
155 MM MUZZLE ADAPTER
Breech adapter
155 MM BRUSH AND DRYING TAMPON SET
MEDIUM BORE BARREL CLEANER

BARREL

SOLVENT TANK

Polartherm Clear-Bore presentation May 2012
Muzzle adapter with cleaning solvent feed

Brush Rod
NOTE: For Calibers 40mm and below, the brush movement is mechanical!
Breech adapter with solvent return
Controls side; covers off

Polartherm Clear-Bore presentation May 2012
Hose reel side; covers off
Accessories: Adapters, Chamber brush, Barrel brush
57 MM BRUSH & ADAPTER
INDIAN “ARJUN” 130 MM TANK GUN AFTER 24 ROUNDS
INdIAN "ARJUN" 130 MM TANK GUN CLEANED
As always – More Research is Ongoing. We need your Help!

Polartherm is interested in acquiring heavily used or unserviceable MATCHING BARRELS with a KNOWN FIRING RECORD, in Calibres .50 / 12.7mm, 20mm, 25mm, 30mm, 35mm, 105mm, 120mm, and 155mm for quantitative studies.
T&E Loan Agreements

A limited number of Machines are available for loans of 30 days or more. Contact POLARTHERM.
Questions?
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