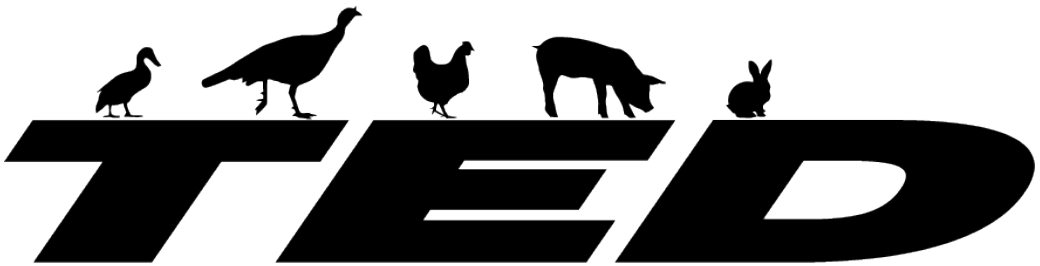


# Technologie d'euthanasie à percutation



**BOCK**  
**INDUSTRIES**  
ANIMAL WELFARE DIVISION



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# Bien-être animal



# Euthanasie

## **Euthanasie**

Le terme euthanasie est dérivé des termes grecs eu signifiant bien et **thanatos**, signifiant la mort. Une « bonne mort » serait celle qui survient avec un minimum de douleur et de détresse.

## **Euthanasie animale**

L'euthanasie animale est l'acte d'induire la mort sans cruauté chez les animaux.

## Nos motivations

### **Vidéos frappantes**

Le traitement non esthétique des animaux de ferme représenté dans des vidéos voulant faire preuve de transparence affecte le grand public de manière émotionnelle.

### **Euthanasie des animaux de ferme**

La nature graphique et spécifique de certaines des techniques actuelles d'euthanasie des animaux, bien que techniquement humaine, peut être considérée comme esthétiquement offensante pour le grand public.

### **Détaillants**

Indépendamment de la perception du public, le bien-être animal est la préoccupation systématique du bien-être animal. Les détaillants exigent le respect du bien-être animal tout au long de la chaîne d'approvisionnement.

**Audits de bien-être:** Exemple - Partenariat mondial pour les animaux, programme en 5 étapes : étape 2.16 Les méthodes d'euthanasie suivantes sont autorisées :

- a) pistolets percuteur à tige pénétrante et non-pénétrante**
- b) coup de feu dirigé vers la tête**
- c) dindes < 14 jours, luxation cervicale manuelle (non mécanique)**
- d) dindes de 15 jours < 5 semaines, étourdissement mécanique suivi d'une dislocation cervicale**
- e) dindes 5 semaines - 10 semaines, étourdissement immédiatement suivi d'une dislocation cervicale**
- f) surdosage d'anesthésiques injectables**
- g) étourdissement / mort par gaz**

### **L'American Veterinary Medical Association, AVMA**

L'AVMA publie des conseils sur l'euthanasie des animaux de ferme pour les États-Unis. L'AVMA a considéré les études scientifiques et l'esthétique récentes comme des raisons de s'éloigner des traumatismes contondants et de la luxation cervicale. Les traumatismes contondants et la luxation cervicale sont considérés comme les mieux adaptés aux sujets plus petits/jeunes.

## Directives AVMA sur l'euthanasie

### **Méthodes approuvées**

- Anesthésiques injectables\*
- Agents inhalés
- Luxation cervicale
- Pistolet percutéur
- Décapitation
- Traumatisme contondant manuel
- Électrocution
- Coup de feu

### **Évaluation des méthodes**

Lors de l'évaluation des méthodes d'euthanasie, tenez compte des critères suivants : capacité à provoquer une perte de conscience et la mort sans causer de douleur, de détresse, d'anxiété ou d'appréhension.

- Temps nécessaire pour induire une perte de conscience
- Fiabilité
- Sécurité du personnel
- Irréversibilité
- Compatibilité avec les exigences et le but
- Effet émotionnel sur les observateurs ou les opérateurs
- Compatibilité avec l'évaluation ultérieure, l'examen, l'utilisation de tissus
- Disponibilité des médicaments et potentiel d'abus humain
- Compatibilité avec les espèces, l'âge et l'état de santé
- Capacité à maintenir l'équipement en bon état de fonctionnement
- Sécurité pour les prédateurs / charognards si la carcasse est consommée

\* Seule méthode approuvée sans conditions, AVMA Guidelines on Euthanasia



e Y D O X D W L R Q G H

### Insensible

HUWHERVFLHFHPSOqWH

DTHSHSHUFHSWLRVHVRULHOOHSHHSDDFLWpSHDpDFWLR

### Irrversible

• 7 U D X P D W L V P H F p U p E U D O V X I  
F R Q V F L H Q F H

^ ] P v • ‰ Z Ç • ] ‹ μ • - ] v • v

pppE

ppE

p

- 1) Le réflexe pupillaire à la lumière est un indicateur fiable d'insensibilité complète et est présent lorsqu'il y a une constriction pupillaire en réponse à la lumière émise dans l'œil.
- 2) Le réflexe cornéen peut facilement être observé sous forme de clignement ou de mouvement de la membrane nictitante.
- 3) L'absence de réflexe cornéen en plus d'une pupille fixe et dilatée indique qu'il y a un flux sanguin réduit vers le tronc cérébral.
- 4) Indicateurs comportementaux, tels que l'absence de tension au cou.



# Captive Bolt Technology



## The Captive Bolt

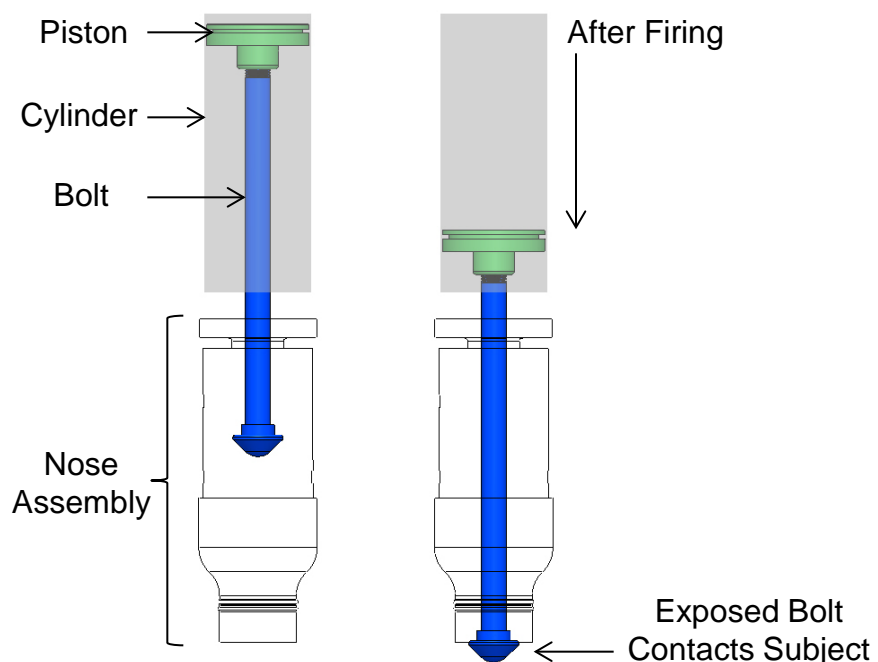
### Mode of Operation

Production of concussion and trauma to the cerebral hemisphere and brainstem, sufficient to induce sudden loss of consciousness and subsequent death.

### Captive Bolt (CB)

The modern captive bolt device and a conventional automobile engine have a similar means of converting the potential energy released from burning fuel: the piston. The CB piston is connected to the bolt. The piston-bolt assembly is held “captive” in the cylinder and cycles from one end of the cylinder to the other with each firing.

The energy produced from the burning fuel is carried by the moving piston-bolt assembly and transferred to the subject by the bolt. A sufficient energy impulse from the exposed bolt will cause instant irreversible insensibility.



# Human Safety

## Operator Safety

Operator safety is the highest design priority. Multiple and redundant safety interlocks help ensure the CB device is not fired unintentionally. The ideal safety system automatically returns the device to “SAFE” without operator intervention after each firing.

To confirm the CB device is located on the subject, patented CB devices feature a safety interlock know as an *activator* (highlighted below). The activator arms the CB trigger when subject contact is confirmed. By ensuring close contact with the subject, the activator also enhances stunning repeatability across operators.

The TED *activator* is in compliance with ANSI-SNT-101-2002, SECTION 3.3.2: full sequential action.

**United States Patent** [19] [11] **4,219,905**  
**Thacker et al.** [57] **Sep. 2, 1980**

[50] **ANIMAL STUNNING GUN**  
 [51] **Inventors:** Fred E. Thacker, 9113 Sanderman Rd., Venetia Palisades, 91161 Sanderman Rd., both of Springfield, Calif. 92477  
 [52] **Filed:** Apr. 27, 1978  
 [53] **Int. Cl.** A22C 11/00  
 [52] **U.S. Cl.** 171/1 B  
 [54] **Field of Search:** 171/1 B

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 3,798,787 3/1974 Wilcox et al. 171/1 B

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 158 1/1950 United Kingdom 171/1 B

**Primary Examiner**—Wille O. Abtornosable  
 [57] **ABSTRACT**  
 Disclosed is a stunning gun for most animals including birds, turtles, horses, veal, and the like comprising a hand held pneumatic housing having a pistol grip and an actuating trigger; a forward animal restraining safety and release, spring portion, valve mechanism operated by the trigger's actuation; and a pneumatic airline supplying air under pressure to an extensible and retractable piston and needle assembly. Upon the actuation of air under pressure behind the piston, a needle attached thereto is caused to move from its starting retracted rest position through an opening in the front or muzzle of the gun to penetrate an animal's skull, depositing a charge of air into the animal's skull, depositing it for slaughter. Air passages are arranged in connection with valves in the housing to cause the needle and piston to retract automatically to the starting position after the stunning operation is completed.

**3 Claims, 13 Drawing Figures**

**United States Patent** [19] [11] **4,280,248**  
**Thacker et al.** [57] **Jul. 28, 1981**

**COMPRESSED-AIR PISTOL OF THE HUMAN KILLER TYPE** [50]  
 [51] **Inventor:** Jean-Frederic Harsel, Guelbwiller, France  
 [52] **Filed:** Dec. 13, 1978  
 [53] **Int. Cl.** A22B 3/02  
 [52] **U.S. Cl.** 171/1 B; 124/40  
 [54] **Field of Search:** 124/40; 124/75; 227/30; 124/76; 77; 40; 171/1 B; 1 A; 1 B; 43/56; 93/461; 173/166; 169; 227/30; 30/350; 228

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**Primary Examiner**—Richard T. Stouffer

**Foreign Application Priority Data**  
 14, 1977 (FR) France 77 37969  
 14, 1978 (FR) France A22B 3/02  
 U.S. Cl. 171/1 B; 124/40

**ABSTRACT**  
 The pistol is so designed that the valve for controlling the forward stroke of the piston is applied directly against the open rear cylinder end which is surrounded by an annular chamber, the chamber being also open at the rear end and in communication with the inlet for connecting up with the compressed air supply.

**7 Claims, 3 Drawing Figures**

**United States Patent** [19] [11] **Patent Number: 6,138,871**  
**Jones** [51] **Date of Patent: Oct. 24, 2000**

**PSYCHOMATIC ANIMAL STUNNER** [50]  
 [51] **Inventor:** Arthur Jones, 67286 259<sup>th</sup> St., Libon, Iowa 50553-0016  
 [52] **Filed:** Apr. 24, 2000  
 [53] **Int. Cl.** A22B 3/06  
 [52] **U.S. Cl.** 42/82; 173/114; 227/30  
 [54] **Field of Search:** 42/82; 57; 173/114; 227/30

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**Primary Examiner**—Wills J. Calk  
**Attorney, Agent, or Firm**—Zeddy, McKee, Flanagan, Neffs & Saxe, Dallas, L. Thorne

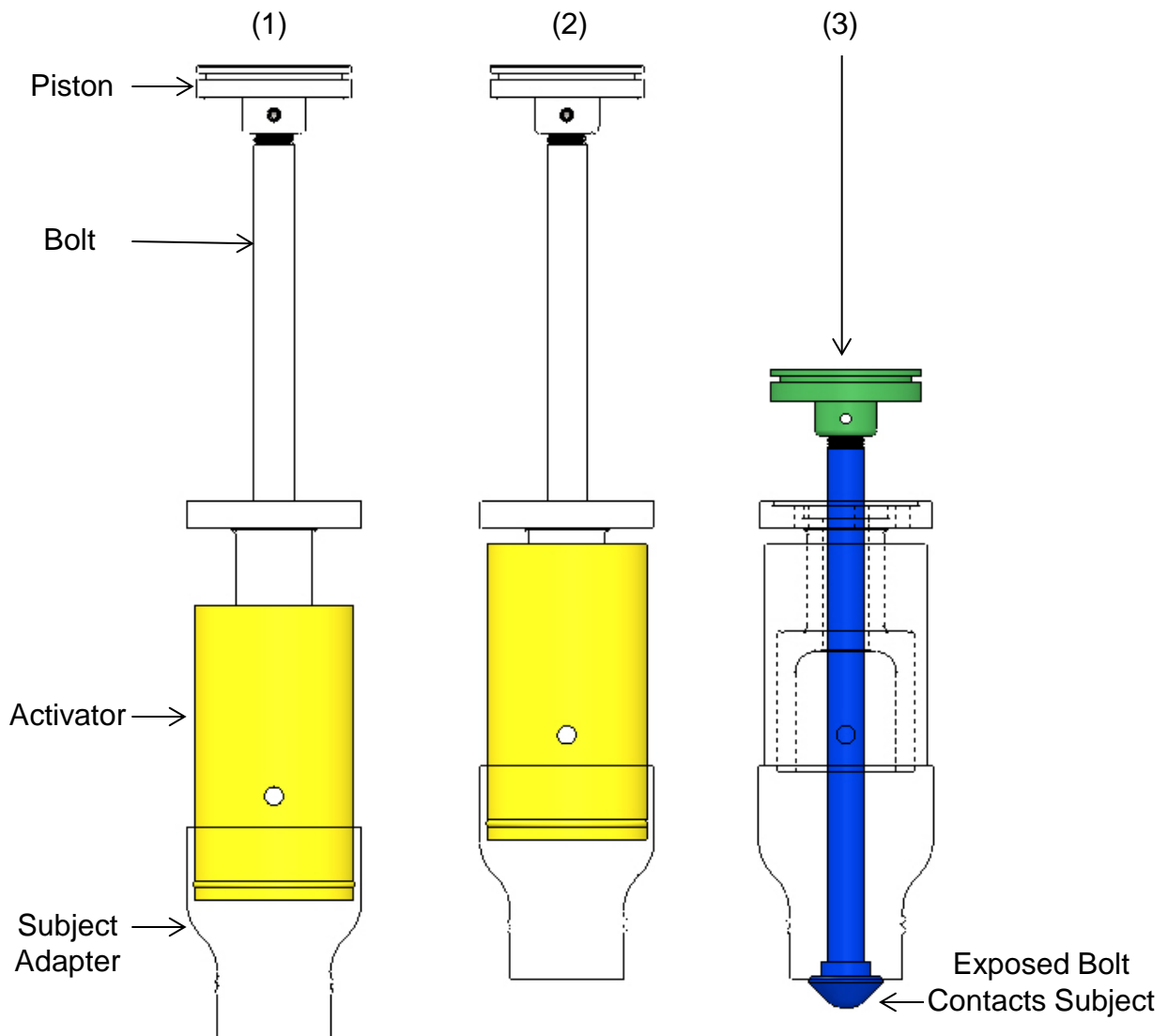
**ABSTRACT**  
 Disclosed is a pneumatic animal stunner that includes a pistol grip for the pistol that forms the stunning device. The pistol grips to hold up behind the striking chamber immediately prior to firing, other than supporting the introduction of pressurized air or fluid at the time of activation, at activation of the gun. The result is faster, more effective strikes. The animal stunner also includes a dual trigger mechanism for safety. The animal stunner has a conventional trigger that is actuated to penetration the muzzle and to activation means located in its front end. The activation means releases a physical lock that retains the pistol in place. Additionally, the activation means is operable when depressed against the muzzle. The animal stunner is designed so that the striking chamber may be fluidly recharged for each time the trigger is pulled. In addition, the animal stunner includes a safety valve that is attached to the front of the device. By extending a pressure proofed fluid around the front of the device, excessive build up of manual stress and other factors on the mechanism is prevented, reducing the need for maintenance.

**10 Claims, 7 Drawing Sheets**

## The TED Firing Sequence

### The Activator Based Safety Interlock

- The TED activator slides from position (1) to position (2), when contact with the subject is confirmed.
- The firing trigger is armed only when the activator is in position (2).
- Position (3) shows the bolt travel when fired; contacting the subject.
- After firing, the bolt and activator automatically return to position (1).



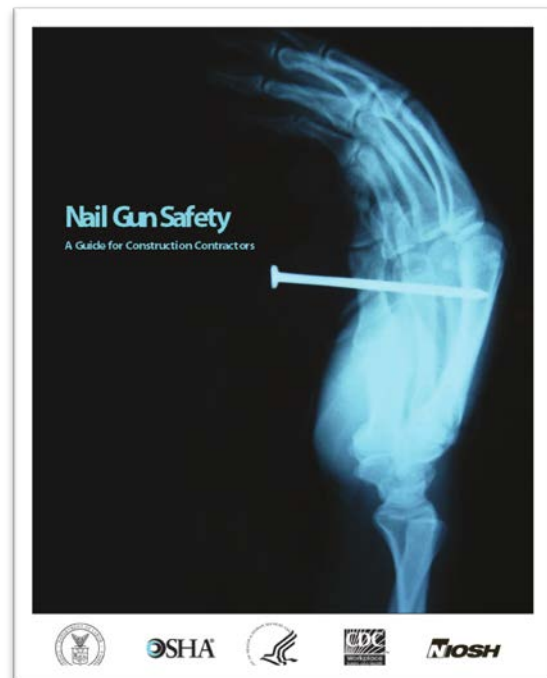
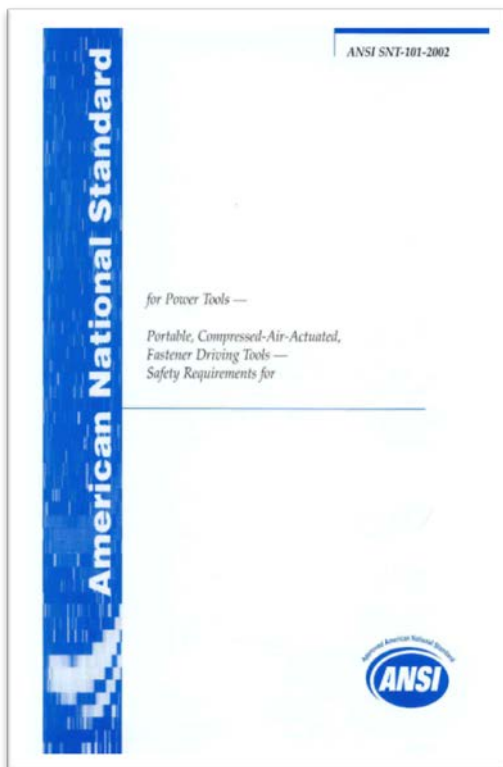
## ANSI: American National Standards Institute

### **ANSI Mission**

To enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity.

The TED actuation system is in compliance with ANSI-SNT-101-2002, SECTION 3.3.2: full sequential action.

Full sequential action systems have more than one operating controls that must be activated in a specific sequence to actuate the device. Additional actuation can occur only when all operating controls are released and re-activated in the same sequence.



## Stunning Energy: Species & Age

### **Adapting Captive Bolt Devices for Species and Age**

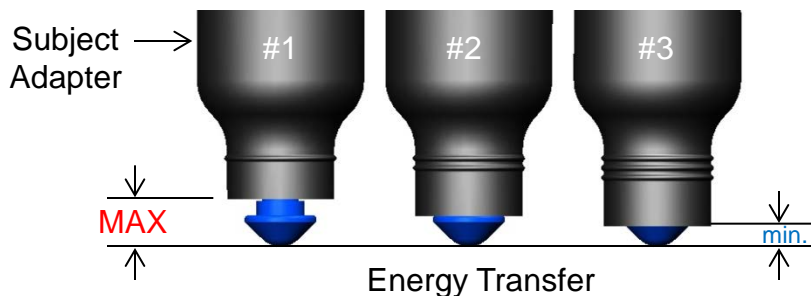
The amount of stunning energy required to produce irreversible insensibility (death) relates to the species and age of the subject. Large subjects require more stunning energy than small subjects.

The stunning energy received by the subject is determined by:

- Controlling the amount of energy initially generated or,
- Controlling the amount of energy transferred during bolt contact.

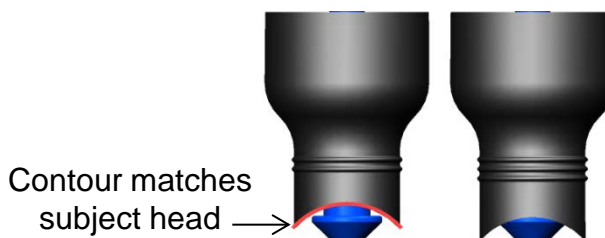
### **Subject: Large Birds or Small Pigs**

The subject adapters (SA) varying in length to controlling the amount of energy transferred during bolt contact. For example, older subjects require more stunning energy than younger subjects. SA#1 allows the greatest bolt travel and transfers the maximum energy to the subject.



### **Subject: Small Bird**

The small bird adapters have a curved contact-end that fits securely behind the comb and matches the contour of the small head.



## Stunning Energy: Subject Restraint

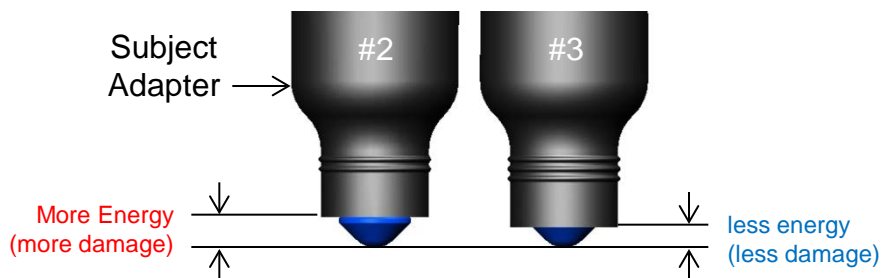
### **What Type of Material is Supporting the Subject?**

The amount of stunning energy required to produce irreversible insensibility relates to the species, age, and **restraint** of the subject. Restraining the subject includes consideration of the type of material under the subject.

### **Adapting Captive Bolt Devices for Subject Restraint**

Operators are encouraged to change the subject adapter (SA) to adjust the total stunning energy transferred, depending on the type of material immediately under the subject.

- Softer floors subtract from the total stunning energy transferred, therefore more total stunning energy is needed: use SA#2.
- Since a concrete floor would not subtract from the total stunning energy transferred: use SA#3 .



### **Beyond Effectiveness... Consider Aesthetics**

- Assume SA#2 is effective on a litter floor. SA#2 will likely have excessive subject damage on a concrete floor. *Therefore, decrease stunning energy by changing to SA#3.*