

**Clarke, Modet & C**

**COLOMBIA**

SUPERINDUSTRIA Y COMERCIO

Radicacion : 04084186 00000004

Folios: 74

Fecha (AMD): 2005-03-03 16:31:18

Tramite : 002 PATENTES D 1 REGISTRO: 444 REPUESTA

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

SEÑORES  
DIVISIÓN DE NUEVAS CREACIONES  
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO  
E. S. D.

REF: SOLICITUD DE PATENTE EN COLOMBIA  
EXPEDIENTE No. 04084186 ✓  
FECHA DE LA SOLICITUD: Agosto 27, 2004  
SOLICITANTE: EAZYPOWER CORPORATION  
TITULO: TALADRO DE PERCUSION Y DISPOSITIVO  
EXTRACTOR DE ELEMENTOS DE SUJECIÓN

ASUNTO: CONTESTACIÓN A REQUERIMIENTO OFICIAL

DILIA RODRIGUEZ D'ALEMAN, en mi condición de apoderada de la sociedad  
solicitante, por el presente escrito me permito presentar:

1. Copia certificada de la Prioridad Estadounidense reivindicada Nr.  
10/844,795 de Mayo 12, 2004
2. Su traducción al español

Esta prioridad está siendo presentada dentro del término, toda vez que la  
solicitud fue presentada el 12 de Mayo de 2004.

Ruego a usted continuar con el presente trámite.

Señor Jefe,



DILIA RODRIGUEZ D'ALEMAN

MRO/srr

p-575

Len.

P. 575

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8749

TRADUCCIÓN OFICIAL No. 05/066 de un documento escrito en inglés, el cual para su identificación se sella con el sello del traductor al tiempo con la presente. Esta traducción ha sido preparada por Juan Pablo Piedrahita Aguilera, Traductor e Intérprete Oficial debidamente reconocido por el Ministerio del Interior y de Justicia, por resolución número 718 de 2003 y autorizado por el Ministerio de relaciones Exteriores de Colombia.

(Se traduce una Certificación de la Oficina de Patentes y Marcas de los Estados Unidos de la Solicitud de patente No. 10/844,795 y el Capítulo de Reivindicaciones respectivo, escritos en inglés.)

PA 1272006

ESTADOS UNIDOS DE AMERICA

A TODOS A QUIENES ESTOS PRESENTES LLEGAREN:  
DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS  
**Oficina de Patentes Y Marcas de Los Estados Unidos**

Enero 14, 2005

POR EL PRESENTE CERTIFICO QUE ADJUNTA SE ENCUENTRA UNA COPIA FIEL DE LOS ARCHIVOS DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AMÉRICA DE LOS DOCUMENTOS DE LA SOLICITUD DE PATENTE IDENTIFICADOS ABAJO Y QUE CUMPLIERON CON LOS REQUISITOS PARA QUE SE LES OTORGARA UNA FECHA DE PRESENTACIÓN BAJO EL CÓDIGO DE COMERCIO DE LOS ESTADOS UNIDOS DE AMÉRICA TÍTULO 35 SECCIÓN 111.

NÚMERO DE SOLICITUD: **10/844,795**

FECHA DE PRESENTACIÓN: **Mayo 12, 2004**

Por autoridad del

COMISARIO DE PATENTES Y MARCAS

(Firmado.)

P. SWAIN

Funcionario que Certifica

(SELLO DE OBLEA DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AMÉRICA)

TRADUCCION OFICIAL No. 05 / 066  
JUAN PABLO PIEDRAHITA AGUILERA  
TRADUCTOR E INTERPRETE OFICIAL  
REC. 718 del 25/07/2003  
DEL MIN. INTERIOR Y JUSTICIA

Código de barras, 22783 Oficina e Patentes y Marcas de los Estados Unidos,  
051204

PTO /SB/ /05/ (04-04)

Aprobado para uso hasta 07/31/2006. OMB 0651-0032

Oficina e Patentes y Marcas de los Estados Unidos, DEPARTAMENTO DE  
COMERCIO

Bajo la Ley de Reducción de Papeleo de 1995, no se requiere que ninguna  
persona responda a una recolección de información a menos que ella  
reemplace un número válido de control OMB.

|                                                                                                                                       |                                                           |                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|
| TRANSMISIÓN DE SOLICITUD DE<br>PATENTE DE UTILIDAD<br><br>(Solamente para solicitudes nuevas no<br>provisionales bajo 37CFR 1.53 (b)) | No. de Expediente                                         | 210121.475C3                                                                 |
|                                                                                                                                       | Oficial                                                   |                                                                              |
|                                                                                                                                       | Primer Inventor Nombrado o Identificación de<br>Solicitud |                                                                              |
|                                                                                                                                       | Steven G. Reed                                            |                                                                              |
|                                                                                                                                       | Título:                                                   | TALADRO DE PERCUSIÓN Y<br>DISPOSITIVO EXTRACTOR DE<br>ELEMENTOS DE SUJECCIÓN |
|                                                                                                                                       | Guía de Correo Expreso No.                                | ER605188145US                                                                |

|                                                                                                                            |                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| ELEMENTOS DE SOLICITUD<br><br>Véase MPEP capítulo 600 referente al contenido de la<br>solicitud para patentes de utilidad. | Diríjase a: Comisario Asistente de<br>Patentes<br><br>Casilla P.O. box 1450<br><br>Alexandria VA. 22313 -<br>1450 |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|

- ☐ Formulario de Transmisión de Pago (P. Ej. PTO/SB/17)  
(Presentar original y copia para procesamiento de pago).
- El solicitante reivindica condición de entidad pequeña.  
(Ver CFR 1.27)

89/24

3. ☒ Especificación (Total de páginas )

(Modalidad preferida a continuación)

- Título Descriptivo de la Invención
- Referencias Cruzadas con Solicitudes Relacionadas
- Declaración Referente a I & D patrocinadas por Fed
- Referencia a lista secuencial, a una tabla, a listado de programa de computador como apéndice
- Antecedentes de la Invención
- Resumen Breve de la Invención
- Descripción Breve de los Dibujos (si se entregaron)
- Descripción Detallada
- Reivindicación(es)
- Resumen de la Divulgación

4. ☐ Dibujo(s) (35 USC 113) (Total de Páginas )

5. Juramento o Declaración (Total de Páginas )

a. ☒ Firmado por primera vez (original o copia)

b. ☐ Copia de una solicitud anterior (37 CFR 1.63 (d))  
(para continuación / división con Casilla 18 llena)

i. ☐ ELIMINACIÓN DE INVENTOR(ES)

Adjunto declaración firmada eliminando el(los) inventor(es) nombrado(s) en la solicitud anterior, ver 37 CFR 1.63 (d) y

90-13

1.33(b).

6. Hoja de Datos de la Solicitud (ver 37CFR 1.76)
7. Disco compacto de solo Lectura CD-ROM o disco legible CD-R en duplicado, en tabla de gran formato o en Programa de Computador (Apéndice)
8. Presentación de Secuencia de Aminoácidos y/o Nucleótidos  
(si es aplicable y/o necesario)
- a. ☐ Copia en medio magnético (copia legible por computador -CRF)
- b. ☒ Especificación de Listado de Secuencias en:
- I. ☐ CD-ROM o CD-R (2 copias); o
- II. ☐ Papel
- c. ☒ Declaración que verifica la identidad de las copias mencionadas arriba

PARTES ADJUNTAS A LA SOLICITUD

9. ☐ Documentos de Cesión (carátula & documento(s))
10. ☐ 37 CFR 3.73(b) Declaración ☒ Poder  
(cuando existe cesionario)
11. ☐ Documento de Traducción del Inglés (si se aplica)
12. ☐ Declaración de Divulgación de Información(IDS) /PTO-1449  
☐ Copias de citaciones IDS
13. ☐ Modificación Preliminar
14. ☒ Tarjeta postal de acuso de recibo (MPEP 503)
15. ☐ Copia(s) Certificada(s) del (los) Documento(s) de Prioridad (si se reivindica prioridad en el extranjero)
16. ☐ Solicitud de No-publicación bajo el título 35 del Código de los

9/6/24

Estados Unidos 122 (b)(2)(b)(i). El solicitante deberá adjuntar el formulario PTO/SB/35 o su equivalente

17. ☐ Otros \_\_\_\_\_

18. SI ES UNA CONTINUACION DE SOLICITUD, llene la casilla apropiada y suministre la información que se requiere a continuación y en la primera frase de la especificación a continuación del Título, o en la Hoja de Datos de la Solicitud bajo 37 CFR 1.76.

☐ Continuación ☐ Divisional ☒ Continuación parcial

de solicitud anterior No. \_\_\_\_\_ (en blanco) \_\_\_\_\_

Información de la solicitud anterior: Examinador: \_\_\_\_\_

Unidad de Arte: \_\_\_\_\_

PARA SOLICITUDES DE CONTINUACIÓN O DIVISIONALES únicamente: La totalidad divulgación de la solicitud anterior, de la cual se suministra un juramento o declaración bajo la Casilla 5b, se considerará parte de la divulgación de la solicitud de continuación o divisional adjunta y por el presente forma parte integral de ella por referencia. Dicha incorporación solo puede tenerse en cuenta cuando una porción haya sido omitida inadvertidamente de las partes de la solicitud presentada.

#### 19. DIRECCIÓN DE CORRESPONDENCIA

☐ Número del Cliente ☐ o ☒ Dirección de correspondencia a

continuación

**NOMBRE:** CHERSKOV & FLAYNIK

**DIRECCIÓN:** The Civic Opera Building, Suite 1447, 20North Wacker Drive

**CIUDAD:** Chicago      **ESTADO:** IL      **CÓDIGO**      **POSTAL:**  
60606

**PAIS:** Estados Unidos      **TELÉFONO:** 312-621-1330      **FAX:** 312-621-0088

**Nombre:** Michael J. Cherskov      **No. Registro (Apoderado/Agente)**

(En letra imprenta)      45533

**Firma**      (Firmado)      **Fecha:** Mayo 12, 2004

Esta recolección de información se requiere bajo 37 CFR 1.53(b). La información se requiere para obtener y conservar un beneficio para el público que vaya a presentar (y para los procesos de la Oficina de Patentes y Marcas de los EE.UU.) una solicitud. La confidencialidad se rige por el 35 USC 122 y 37 CFR 1.14. Se estima que esta recolección de información toma 12 minutos en completarse, incluyendo la recopilación, la preparación, y la presentación de la solicitud completa ante la Oficina de Patentes y Marcas de los EE.UU. Esta duración variará dependiendo de las necesidades individuales. Cualesquiera comentarios acerca de la cantidad de tiempo que Ud. requiere para llenar este formulario y/o sugerencias para reducir esta tarea deben enviarse al Funcionario Jefe de Información, Oficina de Patentes y Marcas de los Estados

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Unidos, Departamento de Comercio de los Estados Unidos, Casilla Postal P.O.  
Box 1450. Alexandria. VA 22313-1450. NO ENVÍE EL VALOR DE LOS  
DERECHOS NI FORMULARIOS LENOS A ESTA DIRECCIÓN. ENVÍELOS AL  
Comisario para Patentes, P.O. Box 1450, Alenxadria VA 22131-1450.

*Si Requiere ayuda en llenar el formulario, favor llamar al 1-800-PTO-9199 y  
adicione la opcion 2.*  
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### REIVINDICACIONES

- 1           1.     Un TALADRO DE PERCUSIÓN Y DISPOSITIVO EXTRACTOR  
2 DE ELEMENTOS DE SUJECCIÓN que comprende:  
3 un engranaje de elemento de sujeción con una pluralidad de proyecciones  
4 dispuestas alrededor de una porción inferior que engrana con la porción  
5 periférica del sujetador; y  
6           un elemento de posición con una porción superior que en últimas recibe  
7 la fuerza que sobre é se ejerce, dicho elemento de posición con una porción  
8 inferior que engrana con una porción superior que coopera, perteneciente a  
9 dicho elemento de engranaje de sujeción, que en últimas fuerza a dichas  
10 proyecciones de dicho elemento de engranaje de sujeción dentro del sujetador,  
11 donde dicho elemento de posición se separa de dicho elemento de engranaje  
12 de sujeción, y una herramienta manual se asegura en forma que pueda  
13 removerse, a dicho elemento de engranaje de sujeción, para impartirle fuerza  
14 de rotación a dicho elemento de engranaje de sujeción, al remover el sujetador  
15 o insertándolo en una pieza de trabajo.

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1            6. El dispositivo de la reivindicación 1, donde dichas proyecciones

95-2-10

2 están configuradas con precisión.

1 7. Un dispositivo para impartir movimiento rotacional sobre el  
2 sujetador que comprende:

3 Un primer elemento de engranaje de sujeción con una apertura dispuesta  
4 axialmente, una pluralidad de primeras proyecciones dispuestas sobre la  
5 porción inferior, y una porción superior que en últimas recibe la fuerza sobre  
6 ella, que fuerza dichas primeras proyecciones dentro de una porción periférica  
7 correspondiente del sujetador; y

8 un segundo elemento de engranaje de sujeción con una pluralidad de  
9 segundas proyecciones dispuestas sobre la porción inferior que engranan una  
10 porción central del sujetador, una porción plana periférica que engrana dicha  
11 porción superior plana de dicho primer elemento de engranaje de sujeción, y  
12 una porción superior plana que en últimas recibe la fuerza sobre ella, que fuerza  
13 dichas primeras y segundas proyecciones en las correspondientes porciones  
14 centrales periféricas del sujetador, dicha porción inferior de dicho segundo  
15 elemento de engranaje de sujeción extendiéndose axialmente a través de una  
16 apertura en dicho primer elemento de engranaje de sujeción para en últimas  
17 engranar la porción central del sujetador.

1 8. El dispositivo de la reivindicación 7 donde dicha porción plana  
2 superior de dicho segundo elemento de engranaje de sujeción incluye los  
3 medios para recibir un miembro de posición en forma removible.

TRADUCCIÓN OFICIAL No. 95-2-10  
JUAN CARLOS PEREZ ACOSTA  
TRADUCCIONES Y SERVICIOS  
S.A. DE C.V.



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1 14. El dispositivo de la reivindicación 13 donde dichas segundas  
2 proyecciones están configuradas en forma piramidal.

1 15. Un método para engranar múltiples porciones de un sujetador,  
2 dicho método comprendiendo los siguientes pasos:

3 suministro de un primer elemento de engranaje de sujeción, con una  
4 apertura dispuesta axialmente, una pluralidad de primeras proyecciones  
5 dispuestas alrededor de una porción inferior, dichas primeras proyecciones  
6 engranando en una porción periférica del sujetador, y una porción superior que  
7 en últimas recibe la fuerza sobre ella que fuerza que fuerza dichas primeras  
8 proyecciones dentro de una porción periférica del sujetador; y suministra un  
9 segundo elemento de engranaje de sujeción, con una pluralidad de segundas  
10 proyecciones dispuestas alrededor de una porción inferior central para engranar  
11 el central del sujetador,, una porción plana inferior periférica que engrana dicha  
12 porción superior plana de dicho primer elemento de engranaje de sujeción, y  
13 una porción superior plana que en últimas recibe la fuerza sobre ella que fuerza  
14 dichas primeras y segundas proyecciones en las correspondientes porciones  
15 centrales periféricas del sujetador, dicha porción inferior de dicho segundo  
16 elemento de engranaje de sujeción extendiéndose axialmente a través de una  
17 apertura en dicho primer elemento de engranaje de sujeción para en últimas  
18 engranar la porción central del sujetador.

1 16. El método de la reivindicación 15 donde el paso de suministrar un

COPIA DE LA PATENTE DE LA AGENCIA DE PATENTES DE LOS ESTADOS UNIDOS DE AMERICA  
No. de la patente: 6,111,111  
Fecha de la patente: 10/10/2000  
TITULO: DISPOSITIVO PARA ENGRANAR MÚLTIPLES PORCIONES DE UN SUJETADOR

2 segundo elemento de engranaje de sujeción con una porción superior plana  
3 incluye el paso de proporcionar los medios para recibir un miembro de posición  
4 sobre él en forma removible.

1 17. El método de la reivindicación 16 donde el paso de suministrar los  
2 medios removibles para recibir incluye el paso de suministrar un receso  
3 dispuesto en forma axial.

1 18. El método de la reivindicación 17 donde el paso de suministrar los  
2 medios para recibir un elemento de engranaje de sujeción removible incluye el  
3 paso de suministrarle a dicho elemento de posición una protuberancia dispuesta  
4 axialmente configurada para cooperar con dicho receso.

1 19. El método de la Reivindicación 15 donde el paso de suministrar  
2 las primeras proyecciones incluye el paso de configurar dichas primeras  
3 proyecciones para que penetren rotacionalmente las porciones  
4 correspondientes del sujetador por medio del cual dicho primer elemento de  
5 engranaje de sujeción imparte una fuerza rotacional sobre la porción periférica  
6 del sujetador.

1 20. El método de la Reivindicación 19 donde el paso de configurar  
2 dichas primeras proyecciones incluye el paso de configurar dichas primeras  
3 proyecciones con precisión.

1 21. El método de la Reivindicación 15 donde el paso de suministrar

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2 segundas proyecciones incluye el paso de configurar dichas segundas  
3 proyecciones para que penetren axialmente en las porciones correspondientes  
4 del sujetador por medio del cual dicho segundo elemento de engranaje de  
5 sujeción le imparte una fuerza rotacional sobre la porción central del sujetador.

1 22. El método de la Reivindicación 21 donde el paso de configurar  
2 dichas segundas proyecciones incluye el paso de configurar dichas segundas  
3 proyecciones en tal forma que incluya una base relativamente grande y un  
4 punta relativamente aguda.

ES TRADUCCIÓN FIEL Y COMPLETA de la cual se deja copia en los archivos de esta oficina para su confrontación y a la cual me remito.

Bogotá, Febrero 11, 2005

TRADUCCIÓN FIEL Y COMPLETA  
JUAN PABLO RUEDA  
TRADUCTOR DE PATENTES  
DEL MINISTERIO DE COMERCIO EXTERIOR

P575 6 100

PA 1272006



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**UNITED STATES DEPARTMENT OF COMMERCE**

**United States Patent and Trademark Office**

**January 14, 2005**

**THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM  
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK  
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT  
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A  
FILING DATE UNDER 35 USC 111.**

**APPLICATION NUMBER: 10/844,795**

**FILING DATE: May 12, 2004**

RECEIVED  
JAN 14 2005  
UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. 20503

**By Authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS**



**P. SWAIN  
Certifying Officer**

UTILITY  
PATENT APPLICATION  
TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

|                        |                           |
|------------------------|---------------------------|
| Attorney Docket No.    | 0052/01433                |
| First Inventor         | Burton Kozak              |
| Title                  | IMPACT DRIVER AND FASTE.. |
| Express Mail Label No. | ER605188145US             |

19279 U.S. PTO  
10/844795

051204

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Commissioner for Patents  
P.O. Box 1460  
Alexandria VA 22313-1460

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.  
See 37 CFR 1.27.
3. ☒ Specification [Total Pages 30]  
(preferred arrangement set forth below)
  - Descriptive title of the invention
  - Cross Reference to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Reference to sequence listing, a table, or a computer program listing appendix
  - Background of the invention
  - Brief Summary of the invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 25]
5. Oath or Declaration [Total Sheets 2]
  - a. ☒ Newly executed (original or copy)
  - b. ☐ Copy from a prior application (37 CFR 1.63(d))  
(for continuation/divisional with Box 18 completed)
  - c. ☐ DELETION OF INVENTOR(S)  
Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
  - a. ☐ Computer Readable Form (CRF)
  - b. Specification Sequence Listing on:
    - i. ☐ CD-ROM or CD-R (2 copies); or
    - ii. ☐ Paper
  - c. ☐ Statements verifying identity of above copies

## ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement of Attorney (when there is an assignee) ☒ Power of Attorney
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☐ Other: .....

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: .....Prior application information: Examiner \_\_\_\_\_ Art Unit: \_\_\_\_\_  
For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

## 19. CORRESPONDENCE ADDRESS

☐ Customer Number: \_\_\_\_\_ OR ☒ Correspondence address below

|         |                                      |           |              |
|---------|--------------------------------------|-----------|--------------|
| Name    | CHERSKOV & FLAYNIK                   |           |              |
| Address | The Civic Opera Building, Suite 1447 |           |              |
|         | 20 North Wacker Drive                |           |              |
| City    | Chicago                              | State     | IL           |
| Country | United States                        | Telephone | 312-621-1330 |
|         |                                      | Fax       | 312-621-0088 |

|                   |                            |                                   |              |
|-------------------|----------------------------|-----------------------------------|--------------|
| Name (Print/Type) | Michael J. Cherskov        | Registration No. (Attorney/Agent) | 33,664       |
| Signature         | <i>Michael J. Cherskov</i> | Date                              | May 12, 2004 |

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1460, Alexandria, VA 22313-1460. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1460, Alexandria, VA 22313-1460.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

22783  
USPTO  
1-2004

PTO/SB/17 (10-03)

Approved for use through 07/31/2006. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# **FEE TRANSMITTAL** **for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT** (\$) 403.00

## **Complete if Known**

Application Number  
Filing Date  
First Named Inventor **Burton Kozak**  
Examiner Name  
Art Unit  
Attorney Docket No. **0052/01433**

## **METHOD OF PAYMENT (check all that apply)**

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number **501709**  
Deposit Account Name **Cherskov & Flaynik**

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## **FEE CALCULATION**

### **1. BASIC FILING FEE**

| Large Entity |          | Small Entity |          | Fee Description        | Fee Paid |
|--------------|----------|--------------|----------|------------------------|----------|
| Fee Code     | Fee (\$) | Fee Code     | Fee (\$) |                        |          |
| 1001         | 770      | 2001         | 385      | Utility filing fee     | 385.00   |
| 1002         | 340      | 2002         | 170      | Design filing fee      |          |
| 1003         | 530      | 2003         | 265      | Plant filing fee       |          |
| 1004         | 770      | 2004         | 385      | Reissue filing fee     |          |
| 1005         | 180      | 2005         | 80       | Provisional filing fee |          |

**SUBTOTAL (1)** (\$) 385.00

### **2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

| Total Claims |           | Extra Claims |     | Fee from below |  | Fee Paid |
|--------------|-----------|--------------|-----|----------------|--|----------|
|              |           |              |     |                |  |          |
| 22           | -20** = 2 | 2            | X 9 |                |  | 18       |
| 3            | -3** = 0  | 0            | X   |                |  |          |
|              |           |              |     |                |  |          |

| Large Entity |          | Small Entity |          | Fee Description                                            |
|--------------|----------|--------------|----------|------------------------------------------------------------|
| Fee Code     | Fee (\$) | Fee Code     | Fee (\$) |                                                            |
| 1202         | 18       | 2202         | 9        | Claims in excess of 20                                     |
| 1201         | 86       | 2201         | 43       | Independent claims in excess of 3                          |
| 1203         | 290      | 2203         | 145      | Multiple dependent claim, if not paid                      |
| 1204         | 86       | 2204         | 43       | ** Reissue independent claims over original patent         |
| 1205         | 18       | 2205         | 9        | ** Reissue claims in excess of 20 and over original patent |

**SUBTOTAL (2)** (\$) 18.00

\*\*or number previously paid, if greater; For Reissues, see above

## **FEE CALCULATION (continued)**

### **3. ADDITIONAL FEES**

Large Entity - Small Entity

| Fee Code | Fee (\$) | Fee Code | Fee (\$) | Fee Description                                                            | Fee Paid |
|----------|----------|----------|----------|----------------------------------------------------------------------------|----------|
| 1051     | 130      | 2051     | 65       | Surcharge - late filing fee or oath                                        |          |
| 1052     | 50       | 2052     | 25       | Surcharge - late provisional filing fee or cover sheet                     |          |
| 1053     | 130      | 1053     | 130      | Non-English specification                                                  |          |
| 1812     | 2,520    | 1812     | 2,520    | For filing a request for ex parte reexamination                            |          |
| 1804     | 920*     | 1804     | 920*     | Requesting publication of SIR prior to Examiner action                     |          |
| 1805     | 1,840*   | 1805     | 1,840*   | Requesting publication of SIR after Examiner action                        |          |
| 1251     | 110      | 2251     | 55       | Extension for reply within first month                                     |          |
| 1252     | 420      | 2252     | 210      | Extension for reply within second month                                    |          |
| 1253     | 950      | 2253     | 475      | Extension for reply within third month                                     |          |
| 1254     | 1,480    | 2254     | 740      | Extension for reply within fourth month                                    |          |
| 1255     | 2,010    | 2255     | 1,005    | Extension for reply within fifth month                                     |          |
| 1401     | 330      | 2401     | 165      | Notice of Appeal                                                           |          |
| 1402     | 330      | 2402     | 165      | Filing a brief in support of an appeal                                     |          |
| 1403     | 290      | 2403     | 145      | Request for oral hearing                                                   |          |
| 1451     | 1,510    | 1451     | 1,510    | Petition to institute a public use proceeding                              |          |
| 1452     | 110      | 2452     | 55       | Petition to revive - unavoidable                                           |          |
| 1453     | 1,330    | 2453     | 665      | Petition to revive - unintentional                                         |          |
| 1501     | 1,330    | 2501     | 665      | Utility issue fee (or reissue)                                             |          |
| 1502     | 480      | 2502     | 240      | Design issue fee                                                           |          |
| 1503     | 640      | 2503     | 320      | Plant issue fee                                                            |          |
| 1480     | 130      | 1480     | 130      | Petitions to the Commissioner                                              |          |
| 1807     | 50       | 1807     | 50       | Processing fee under 37 CFR 1.17(a)                                        |          |
| 1808     | 180      | 1808     | 180      | Submission of Information Disclosure Stmt                                  |          |
| 8021     | 40       | 8021     | 40       | Recording each patent assignment per property (times number of properties) |          |
| 1809     | 770      | 2809     | 385      | Filing a submission after final rejection (37 CFR 1.129(a))                |          |
| 1810     | 770      | 2810     | 385      | For each additional invention to be examined (37 CFR 1.129(b))             |          |
| 1801     | 770      | 2801     | 385      | Request for Continued Examination (RCE)                                    |          |
| 1802     | 900      | 1802     | 900      | Request for expedited examination of a design application                  |          |

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

**SUBTOTAL (3)** (\$) 0.00

## **SUBMITTED BY**

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Signature *Michael J. Cherskov* Date **May 12 2004**

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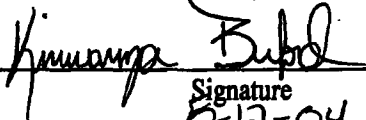
103 30

**CERTIFICATE OF MAILING**

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Signature

8-12-04

Date of Deposit

**IMPACT DRIVER AND  
FASTENER REMOVAL DEVICE**

**BACKGROUND OF THE INVENTION**

**1. Field of the Invention**

The present invention relates generally to fastener extraction devices and, more particularly, to fastener impact devices for extracting a fastener from or inserting a fastener into a workpiece by striking the device with a hammer to force grasping projections into the head of the fastener, then removably securing a hand too to the device to impart rotary motion to the device thereby rotating the fastener in a predetermined direction.

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## 2. Background of the Invention

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Fastener extraction devices are well known and are generally designed to remove broken stud bolts and to extract one-way fasteners by the device with a rotary drive tool such as a ratchet. However, few of the prior art fastener extraction devices are designed to receive a strike from an impact tool such as a hammer to force "biting" edges or projections of the extraction device into the head of the fastener to allow the extraction device to "grasp" the fastener head and forcibly rotate the head in a predetermined direction with a rotary drive tool. Examples of prior art fastener extraction designs that can receive a forceful blow from an object such as a hammer are illustrated in U.S. patents 4,875,289; and 4,026,338. Further, the prior art impact designs include projections that are limited in number, that engage the fastener head at less than optimum portions and that are designed to "assist" a primary rotational driver (the blade of a screwdriver) to rotate the fastener.

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A problem with the prior art impact extraction designs is that the edges or projections are too few in number or are imbedded sufficiently deep into the fastener head and ultimately "break free" from the fastener head before sufficient rotational force is generated to extract the fastener from the workpiece. Another problem with the prior art designs is that the projections cannot be driven sufficiently deep into the fastener head without damaging the device with a forceful hammer strike. Yet another problem with the prior art designs is that a deformed or damaged fastener head may include portions that cannot be engaged by corresponding projections from the extraction device resulting to few projections engaging the fastener head to provide sufficient rotational force to remove or insert the fastener from or into the workpiece.

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5 A need exists in the art for a fastener impact driver device that includes edges and/or  
projections sufficient in quantity and design to grasp and rotate a fastener head. Further, the  
device must be capable of receiving forceful impact without being damaged. Also, the device  
10 must be sufficiently adjustable to cause all projections extending therefrom to engage  
corresponding portions of the fastener head thereby promoting the rotation of the fastener into or  
15 from a workpiece.

### SUMMARY OF THE INVENTION

It is an object of the present invention to provide a fastener impact driver device thereby  
overcoming many of the disadvantages of the prior art.

A principal object of the present invention is to provide a fastener impact driver device  
25 that removes or inserts a fastener into a workpiece. A feature of the device is a fastener  
engagement member with projections that insert into and "grasp" a peripheral portion of a  
fastener head. An advantage of the device is that it transfers rotary motion from a hand tool to  
5 the fastener head.

Another object of the present invention is to provide a device capable of receiving a  
hammer strike thereupon. A feature of the device is a positioning member that is axially aligned  
10 with and removably inserted into the fastener engagement member via a protuberance extending  
from the positioning member and snugly inserting into a recess in the fastener engagement  
15 member. An advantage of the device is that the positioning member "protects" the fastener  
engagement member from being deformed or otherwise damaged by hammer strikes. Another  
advantage of the device is that the positioning member transfers the driving force of the hammer  
20 to the fastener engagement member thereby forcing the projections of the fastener engagement

member to be driven into the fastener head. Still another advantage of the device is that the positioning member is removable from the fastener engagement member to allow a hand tool to be inserted into the recess in the fastener engagement member and impart rotary motion thereupon to ultimately rotate the fastener head to insert the fastener into or extract the fastener from a workpiece.

Still another object of the present invention is to provide alternative projection configurations. A feature of the device is a selection of fastener engagement members that have varying projection configurations that includes linear or arcuate. An advantage of the device is that rotary motion imparted upon the fastener head by a fastener engagement member may be increased by using an arcuate projection configuration.

Yet another object of the present invention is to provide a device that protects the fingers of a user of the device. A feature of the device is an extension that is integrally joined to a lower portion of the positioning member and extends around an upper peripheral portion of the fastener engagement member. An advantage of the device is that the fingers of the user will not be pinched between the bottom wall of the positioning member and a top wall of the fastener engagement member.

Another object of the present invention is to provide an alternative fastener engagement member. A feature of the device is a lower annular planar surface that includes pyramid configured projections extending therefrom which cooperate with the peripheral projections to increase the grasp of the fastener engagement member upon the fastener head. An advantage of the device is that peripheral and central portions of the fastener head are grasped and rotated by the fastener engagement member thereby increasing the quantity of rotary force imparted upon

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the fastener to ultimately insert or extract the fastener into or from a workpiece.

Another object of the present invention is to provide an alternative fastener impact driver device. A feature of the device is a first fastener engagement member that includes an aperture axially disposed therethrough. An advantage of the device is that a damaged or deformed fastener head that ordinarily would not be engaged by a single fastener engagement member can ultimately be engaged by a second fastener engagement member that is independent of the first fastener engagement member.

Another object of the present invention is to provide an alternative fastener impact driver device having first and second fastener engagement members that engage cooperating peripheral and central portions of a fastener head. A feature of the device is projections protruding from lower portions of the first and second fastener engagement members that independently grasp respective peripheral and central portions of the fastener head when a hammer is struck upon a positioning member disposed upon a top wall of the second fastener engagement member. An advantage of the device is that rotary motion is imparted upon peripheral and central portions of a deformed fastener head to extract or insert the fastener head from or into a workpiece.

Another object of the present invention is to provide an alternative fastener impact driver device capable of receiving a hammer strike without damaging the first and second fastener engagement members. A feature of the device is a positioning member that is axially aligned with and removably inserted into the second fastener engagement member via a protuberance extending from the bottom wall of the positioning member and snugly inserting into a recess in the top wall of the second fastener engagement member. An advantage of the device is the

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positioning member is readily removed from the top wall of the second fastener engagement member to allow a hand tool to be inserted in the recess in the top wall thereby providing rotary motion to the first and second fastener engagement members to ultimately rotate the fastener head to insert the fastener into or extract the fastener from a workpiece.

Briefly, the invention provides a fastener impact driver device comprising a fastener engagement member having a plurality of projections disposed about a lower portion that engages a peripheral portion of a fastener, and a positioning member having an upper portion that ultimately receives a force thereupon, said positioning member having a lower portion that engages a cooperating upper portion of said fastener engagement member whereby a force imparted upon said upper portion of said positioning member ultimately forces said projections of said fastener engagement member into the fastener whereupon said positioning member is removed from said fastener engagement member and a hand tool is removably secured to said fastener engagement member to impart rotary force to said fastener engagement member thereby removing the fastener from or inserting the fastener into a workpiece.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing invention and its advantages may be readily appreciated from the following detailed description of the preferred embodiment, when read in conjunction with the accompanying drawings in which:

Figure 1 is a perspective view of a fastener impact driver device, in accordance with features of the present invention;

Figure 2 is an exploded perspective view of a similar fastener impact driver device, in accordance with features of the present invention;

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Figure 3 is a top elevation view of a fastener engagement member of the device of figure 1 in accordance with features of the present invention;

Figure 4 is a bottom elevation view of the fastener engagement member of figure 3;

Figure 5 is a side elevation view of the fastener engagement member of figure 3;

Figure 6 is a sectional side view of the fastener engagement member of figure 3 taken along line 6-6 of figure 3;

Figure 7 is a top elevation view of a positioning member of the device of figure 1 in accordance with features of the present invention;

Figure 8 is a bottom elevation view of the positioning member of figure 7;

Figure 9 is a side elevation view of the positioning member of figure 7;

Figure 10 is a sectional side view of the positioning member of figure 7 taken along line 10-10 of figure 7;

Figure 11 is a bottom elevation view of the fastener engagement member as depicted in figure 4 but with arcuate projections configured to facilitate the removal of a fastener from a workpiece in accordance with features of the present invention;

Figure 12 is a sectional side elevation view of the fastener engagement member as depicted in figure 6 but with arcuate projections configured to facilitate the removal of a fastener from a workpiece in accordance with features of the present invention;

Figure 13 is a bottom elevation view of the fastener engagement member as depicted in figure 4 but with arcuate projections configured to facilitate the insertion of a fastener into a workpiece in accordance with features of the present invention;

Figure 14 is a sectional side elevation view of the fastener engagement member as

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depicted in figure 6 but with arcuate projections configured to facilitate the insertion of a fastener into a workpiece in accordance with features of the present invention;

5           Figure 15 is a side elevation view of the projections depicted in figures 4 and 6, the projections having lineal cutting edges;

10           Figure 16 is a side elevation view of the projections of figure 15, but with an arcuate cutting edge in accordance with features of the present invention;

15           Figure 17 is a side elevation view of the arcuate projections depicted in figures 11 and 12, the projections having lineal cutting edges;

20           Figure 18 is a side elevation view of the projections of figure 17, but with an arcuate cutting edge in accordance with features of the present invention;

25           Figure 19 is a side elevation view of the arcuate projections depicted in figures 13 and 14, the projections having lineal cutting edges;

30           Figure 20 is a side elevation view of the projections of figure 19, but with an arcuate cutting edge in accordance with features of the present invention;

35           Figure 21 is a bottom perspective view of the fastener engagement member depicted in figure 4, but with an alternative design for a recess in a lower portion in accordance with features of the present invention;

40           Figure 22 is a sectional side view of the fastener engagement member depicted in figure 21;

            Figure 23 is a perspective view of an alternative fastener impact driver device in accordance with features of the present invention;

            Figure 24 is an exploded perspective view of the device of figure 23;

            Figure 25 is a top elevation view of a first fastener engagement member of the device of

figure 23 in accordance with features of the present invention;

Figure 26 is a bottom elevation view of the first fastener engagement member of figure 25;

Figure 27 is a side elevation view of the first fastener engagement member of figure 25;

Figure 28 is a sectional side view of the first fastener engagement member of figure 25 taken along line 28-28 of figure 25;

Figure 29 is a top elevation view of a second fastener engagement member of the device of figure 23 in accordance with features of the present invention;

Figure 30 is a bottom elevation view of the second fastener engagement member of figure 29;

Figure 31 is a side elevation view of the second fastener engagement member of figure 29;

Figure 32 is a sectional side view of the second fastener engagement member of figure 29 taken along line 32-32 of figure 29;

Figure 33 is top elevation view of a positioning member of the device of figure 23 in accordance with features of the present invention;

Figure 34 is a bottom elevation view of the positioning member of figure 33;

Figure 35 is a side elevation view of the positioning member of figure 33;

Figure 36 is a sectional side view of the positioning member of figure 33 taken along line 36-36 of figure 33;

Figure 37 is a perspective view of an alternative positioning member which includes an extension to protect an operators fingers. The alternative positioning member may be utilized with either version of the fastener impact driver device; and

Figure 38 is a sectional side view (without the positioning member) of the alternative

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impact driver device of figure 23 engaging the fastener head;

### DESCRIPTION OF THE PREFERRED EMBODIMENT

5 Referring now to the drawings and in particular to figures 1-9, a fastener impact driver  
device 10 in accordance with the present invention, is denoted by numeral 10. The device 10  
includes a fastener engagement member 12 having a plurality of projections 14 disposed about a  
10 lower portion 16 that engages a corresponding peripheral portion 18 of a fastener 20. The device  
has many applications, but the preferred use is for extracting a one way fastener which is the  
15 fastener 20 depicted in figure 1. The device 10 further includes a positioning member 22 having  
an upper portion 24 that ultimately receives a force thereupon, said positioning member 22  
having a lower portion 26 that engages a cooperating upper portion 28 of the fastener  
20 engagement member 12 whereby a force (a hammer strike) is imparted upon the upper portion 24  
of the positioning member 22 to drive the projections 14 of the fastener engagement member 12  
25 into the fastener 20 without damage to the fastener engagement member 12, whereupon the  
positioning member 22 is removed from the fastener engagement member 12 and a hand tool  
(not pictured) is removably secured to the fastener engagement member 12 to impart rotary force  
30 to the fastener engagement member 12 and the fastener 20 thereby removing the fastener 20 from  
or urging the fastener 20 into a workpiece (not pictured).

35 The fastener engagement member 12 and positioning member 22 are fabricated from a  
rigid, non-deformable material such as steel. The fastener engagement member 12 includes an  
axially disposed recess 30 in the upper portion 28 for removably receiving a protuberance 32  
40 integrally joined to the positioning member 22. The recess 30 and protuberance 32 are  
cooperatively configured to maintain the axial orientation of the positioning member 22 relative

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to the fastener engagement member 12 irrespective of the quantity of force ultimately imparted upon the upper portion 24 of the positioning member 22. Although the recess 30 may include a cylindrical configuration thereby allowing rotation protuberance 32 within the recess 30, the preferred recess 30 configuration is substantially square as depicted in the top view of figure 2. The square configuration of the recess 30 promotes the transfer of rotary motion from the hand tool, which typically includes a substantially square configured protuberance, to the fastener engagement member 12 and ultimately to the fastener 20, when a user of the device 10 attempts to remove the fastener 20 from or urge the fastener 20 into a workpiece. Optionally, an exterior, circumferentially extending surface 13 of the fastener engagement member 12 is configured as a plurality of flat regions so as to enhance gripping of the member by a wrench.

Referring now to figures 4 and 6, the projections 14 in the lower portion 16 of the fastener engagement member 12 are substantially radial, triangular configured "teeth" that extend from a relatively annular peripheral portion 34 of a concave recess 36 to a "saw tooth" configured bottom edge 38. An alternative configuration to the radially configured projections 14 of figures 4 and 6, are the arcuately configured projections 40 and 42 of figures 11, 12 and 13, 14, respectively. The arcuate configuration of the projections 40 of figures 11 and 12, facilitate the removal of the fastener 20 from a workpiece. The arcuate configuration of the projections 42 of figures 13 and 14, facilitate the insertion of the fastener 20 into the workpiece. The arcuate configurations 40 and 42 resist deformation as rotary motion is imparted upon a fastener head 44 portion of the fastener 20 by the projections 40 and 42 thereby providing an increase in rotary motion that can be transferred from the fastener engagement member 12 to the fastener 20 to prevent the projections from "breaking free" from the fastener head 44 and

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spinning upon the surface of the peripheral portion 18 of the fastener head 44.

The projections 14 have predetermined bottom configurations (as depicted in figures 4-  
5 6 and 11-14) that promote the transfer of rotary motion from a hand tool to the fastener 20.  
Furthermore, the projections 14 have a predetermined side configurations as depicted in figures  
15-20 that promote the insertion of the projections 14 into the surface of the fastener head 44 as  
10 the fastener engagement member 12 is urged against the fastener head 44 by a hand tool  
engaging the fastener engagement member 12, or by a hammer forcibly striking a positioning  
15 member 22 disposed upon an upper portion 28 of the fastener engagement member 12.

Referring to figure 15, the projections 14 include a substantially lineal cutting edge 46  
that "cuts" or "saws" into the surface of the fastener head 44 when the fastener engagement  
20 member 12 receives a driving force thereupon. The configuration of the cutting edge 46 is  
generally smooth and continuous, however, the edge 46 may include serrations to promote the  
25 insertion of the edge 46 into the fastener head 44. The cutting edge 46 of figures 15 and 16, may  
be used to rotate virtually any fastener head 44 except a head that is countersunk below the  
surface of a workpiece. The lineal cutting edge 46 of figures 15 and 16 will grasp less of the  
30 fastener head 44 as the configuration of the head 44 becomes more round thereby reducing the  
amount of rotational force that may be applied to the fastener 20.

Referring to figure 16, the projections 14 are depicted as being arcuate with an arcuate  
35 cutting edge 48 to facilitate increased engagement between the cutting edge 48 and a  
substantially round or oval fastener head 44. The projections 14 are radially disposed relative to  
40 the annular peripheral portion 34 of the concave recess 36 when taking a bottom view of the  
fastener engagement member 12. The configuration of the projections 14 of figure 16 promote

the insertion of the edge 48 into the rounded fastener head 44.

Referring to figures 17-20, side views of arcuate projections 40 and 42 are depicted as being lineal 50 or arcuate 52 to correspond to the configuration of the fastener head 44. The more oval the head configuration, the more arcuate the projection thereby providing sufficient engagement between the projections 40 and 42 and the fastener head 44 to promote the rotation of the fastener 20 into or out of a workpiece.

Referring now to figures 5, the fastener engagement member 12 includes a beveled portion 54 extending from the annular bottom edge 38 to an outer cylindrical side wall 56 of the fastener engagement member 12. The beveled portion 54 prevents the lower portion 16 of the fastener engagement member 12 from engaging a workpiece before the projections 14 of the engagement member 12 are inserted into the fastener 20 thereby promoting sufficient engagement between the projections 14 and the fastener head 44 such that the fastener engagement member 12 is capable of driving the fastener 20 into or removing the fastener 20 from a workpiece.

Furthermore, the beveled portion 54 promotes flexibility in the lower portion 16 of the fastener engagement member 12. As the arcuate cutting edges 48 of the projections 14 gouge into the peripheral portion 18 of the fastener head 44, the beveled portion 54 allows the annular bottom edge 38 to expand radially outward from the axis of the engagement member 12 thereby forcing the cutting edges 48 of the projections 14 to congruently engage corresponding portions of the fastener head 44 even with the initial configuration of the cutting edges 48 being relatively dissimilar to the configuration of the fastener head 44. The congruent engagement between the cutting edges 48 and the fastener head 44 increases the "grip" of the fastener engagement

member 12 upon the fastener head 44 to promote the insertion or removal of the fastener 20.

Should the configurations of the cutting edges 46 and the fastener head 44 be substantially

5 dissimilar, the annular bottom edge 38 will not expand sufficiently to promote congruent  
engagement between the cutting edges 48 and the fastener head 44. The expanding bottom edge  
38 will also promote congruent engagement between the arcuate cutting edges 52 of the arcuately  
10 configured projections 40 and 42. The lineal cutting edges 46 and 50 of the projections 14, 40  
and 42 will limit expansion of the annular bottom edge 38 thus reducing engagement between the  
15 projections and a corresponding fastener head 44 and proportionately reducing the amount of  
rotary motion that may be transferred from the fastener engagement member 12 and the fastener  
20.

20 The recess 30 in the lower portion 16 of the fastener engagement member 12 is  
configured to receive a central portion 58 (see figure 2) of the fastener head 44 of the fastener 20  
25 to promote the unobstructed engagement between the projections 14 and the peripheral portion  
18 of the fastener head 44. The recess 30 must be dimensioned to receive the fastener head 44  
irrespective of the type of fastener 20 (one-way, arcuate, flat or damaged), and to allow a  
30 projection 14 length that promotes maximum contact between the cutting edges 46, 48 and the  
peripheral portion 18 of the fastener head 44.

35 Referring now to figures 21 and 22, an alternative design for the recess 30 in the lower  
portion 16 of the fastener engagement member 12 is depicted. In place of the recess 30, the  
engagement member 12 includes a planar surface 60 having a plurality of pyramid configured  
40 points or projections 62 extending from the surface 60 to ultimately engage and grasp the central  
portion 58 of the fastener head 44. The alternative design provides increased gripping capability

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for the fastener engagement member 12 when used to impart rotational force to insert or extract a fastener 20 with a worn head 44 or with a head 44 configuration that limits engagement between the projections 14 and the peripheral portion 18 of the fastener head 44. The pyramid projections 62 and the cutting edges 46 or 48 of the projections 14 engage some but not all portions of the fastener head 44, but the combined "bite" of the edges 46 and pyramid projections 62 promote a transfer of rotary force sufficient to insert or remove a fastener 20 into or from a workpiece.

In operation, a fastener engagement member 12 is selected to extract or insert a fastener 20 into a workpiece. Although the application of the fastener engagement member 12 is extensive, the preferred use of the member 12 is to extract a one way fastener 20 from a workpiece. The fastener engagement member 12 is positioned upon the fastener 20 such that the projections 14 engage a peripheral portion 18 of the fastener head 44. A hammer or similar blunt instrument is struck upon a top wall or upper portion 28 to force the projections 14 into the fastener head 44. A hand tool such as a ratchet with a protuberance extending therefrom is inserted into a recess 30 in the upper portion 28 thereby imparting rotary motion upon the fastener engagement 12 and ultimately upon the fastener head 44 via the projections 14 to extract the fastener 20 from a workpiece. To prevent the fastener engagement member 12 from being deformed by hammer strikes, a positioning member 22 is disposed upon the fastener engagement member 12. The axial orientation of the positioning member 22 relative to the fastener engagement member 12 is maintained irrespective of the quantity of force ultimately imparted upon the upper portion of the positioning member 22 by a protuberance 32 extending from a lower portion 26 of the positioning member 22 into the recess 30 of the fastener engagement member 12. Upon driving the projections 14 into the fastener head 44, the positioning member

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22 is removed and the hand tool substituted therefor to rotate the fastener engagement member 12 and extract the fastener 20.

5           Should an operator become careless when using the present invention, one or more fingers could be "pinched" between the positioning member 22 and the fastener engagement member 12. To prevent finger injury, a modification of the positioning member 22 in accordance  
10 with the present invention is depicted in figure 37. The modified positioning member 23 includes a tapered extension 25 with a cylindrical recess that snugly receives the upper portion 28  
15 of the fastener engagement member 12 such that the operator's fingers are prevented from engaging the upper portion 28 of the fastener engagement member 12 when the operator strikes the upper portion 24 of the modified positioning member 23 with a hammer.

20           Some fasteners 20 selected for removal have corroded, deformed or otherwise damaged heads 44 which require a fastener engagement member 12 with modifications that provide added  
25 gripping capability to extract the fastener 20. The modifications include changing the configuration of the projections 14 to include an arcuate configuration 48, 50 and 52.

30           Further modifications include the addition of pyramid configured projections 62 to a planar surface 60 in a central portion of the fastener engagement member 12. The pyramid projections 62 grasp a central portion 58 of the fastener head 44 thereby cooperating with the arcuate  
35 projections to increase the grip of the fastener engagement member 12 upon the fastener head 44 to ultimately increase the quantity of rotary motion imparted upon the fastener 20 to remove the fastener 20 from a workpiece. Unfortunately, some fasteners 20 are damaged so severely that all  
40 the aforementioned options prove ineffective. To rotate these damaged fasteners 20, further modifications are required.

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Referring now to figures 23-36, and 38, an alternative fastener impact driver device in accordance with the present invention, is denoted by numeral 80. The alternative device 80 includes a first fastener engagement member 82 having a cylindrical side wall 83 and a plurality of first projections 84 disposed upon a concave, relatively annular configured, when taking a bottom view, bottom wall 86 that engages a corresponding peripheral portion 88 of a fastener 90. The first fastener engagement member 82 has an annular top planar wall 87, when taking a top view, that ultimately receives a force thereupon that forces the first projections 84 into the corresponding peripheral portion 88 of the fastener 90. The alternative device 80 further includes a second fastener engagement member 92 having a cylindrical side wall 85 and a plurality of second projections 94 disposed upon a bottom portion 96 that engages a corresponding central portion 98 of the fastener 90. The second fastener member 92 has an annular bottom wall 100 that engages the top wall 87 of the first fastener engagement member 82. The second fastener member 92 has an annular top planar wall 102, when taking a top view, that ultimately receives a force thereupon that forces the first and second projections 84 and 94 into corresponding peripheral and central portions 88 and 98 of the fastener 90. The bottom portion 96 of the second fastener engagement member 92 extends through an aperture 104 in the first fastener engagement member 82 to ultimately engage the central portion 98 of the fastener 90.

Referring to figures 23-28, the first fastener engagement member 82 is fabricated from a rigid, non-deformable material such as steel. The aperture 104 is axially disposed and extends through the first fastener engagement member 82. The aperture 104 has a square configuration, when taking a top view of the member 82, to promote the transfer of rotary motion from the second fastener engagement member 92 to the first fastener engagement member 82. The first

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projections 84 are disposed about the concave bottom wall 86 to form a recess 106 or cavity that receives a similarly configured peripheral portion 88 of the fastener 90. The first projections 84 are substantially radial, triangular configured "teeth" that extend from an edge 108 formed at the bottom of the aperture 104 to a "saw tooth" configured bottom edge 110. The configuration of the first projections 84 may be altered to include the same arcuate cutting edge 48 as described above for the lineal projections 14, and the same arcuate edge 52 as described above for the arcuate projections 40 and 42 of the fastener engagement member 12 of the fastener impact driver device 10 (see figures 4-20). Arcuately configured first projections 84 facilitate the removal or insertion of the fastener 90 from or into a workpiece. Arcuately configured first projections reduce deformation of the projections as the first fastener engagement member 82 transfers rotary motion to the fastener 90 thereby increasing the quantity of rotary motion transferred before the projections break away from fastener 20.

Referring to figures 25-28, the first projections 84 include a substantially lineal cutting edge 116 that "cuts" into the surface of the fastener head 114 when the first fastener engagement member 82 receives a driving force thereupon. The configuration of the cutting edge 116 is generally smooth and continuous, but the edge 116 may include serrations to promote the "sawing" of the edge 116 into the fastener head 114. The cutting edge 116 may be used to rotate most fastener heads protruding above the surface of a workpiece. The lineal cutting edge 116 will grasp less of the fastener head 114 as the configuration of the head 114 becomes more round thus reducing the amount of rotational force that may be applied to the fastener 90.

The first projections 84 may be arcuate with an arcuate cutting edge to facilitate increased engagement between the arcuate cutting edge and a substantially round or oval fastener head 114.

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The first projections 84 are radially disposed relative to the annular peripheral portion 108 when taking a bottom view of the first fastener engagement member 82. The arcuate configuration of the first projections 84 promote the insertion of the edge 118 into a rounded fastener head 114. The more oval the head configuration, the more arcuate the first projection thereby providing sufficient engagement between the first projections and the fastener head 114 to promote the rotation of the fastener 90 into or out of a workpiece.

Referring to figures 23-28, the first fastener engagement member 82 includes a beveled portion 120 that serves the same function as the beveled portion 54 described above. More specifically, the beveled portion 120 prevents any lower portion of the first engagement member 82 from engaging a workpiece before the first projections 84 are inserted into the fastener 90 thereby promoting sufficient engagement between the first projections 84 and the fastener head 114. Furthermore, the beveled portion 120 promotes flexibility in the lower portions of the first fastener engagement member 82. As the arcuate cutting edges 118 of the first projections 84 gouge into the peripheral portion 88 of the fastener head 114, the beveled portion 120 allows the annular bottom edge 122 to expand radially outward from the axis of the first engagement member 82 thereby forcing the cutting edges 118 of the first projections 84 to congruently engage corresponding portions of the fastener head 114 even with the initial configuration of the cutting edges 118 being relatively dissimilar to the configuration of the fastener head 114. The congruent engagement between the cutting edges 118 and the fastener head 114 increases the "grip" of the first fastener engagement member 82 upon the fastener head 114 to promote the insertion or removal of the fastener 90. Should the configurations of the cutting edges and the fastener head 114 be substantially dissimilar, the annular bottom edge 122 will not expand

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sufficiently to promote congruent engagement between the cutting edges 118 and the fastener head 114. The expanding bottom edge 122 will also promote congruent engagement between the arcuate cutting edges of the first arcuately configured projections 118. The lineal cutting edges of the first projections 84 will limit expansion of the annular bottom edge 122 thus reducing engagement between the first projections 84 and a corresponding fastener head 114 thereby proportionately reducing the amount of rotary motion that may be transferred from the first fastener engagement member 82 and the fastener 90.

Referring to figures 29-32, the second fastener engagement member 92 is fabricated from a rigid, non-deformable material such as steel. The second fastener engagement member 92 includes a substantially square protuberance, when taking a bottom view, that snugly inserts through the similarly configured aperture 104 in the first fastener engagement member 82 to promote engagement between the second projections 94 of the lower portion 96 of the second fastener engagement member 92 and the central portion 98 of the fastener head 114. Further, the cooperating square configurations transfer rotary motion from the second fastener engagement member 92 to the first fastener engagement member 82. The protuberance 124 is axially dimensioned to extend from the top wall 87 of the first fastener engagement member 82 to the central portion 98 of the fastener head 114 such that the second projections 94 will be urged into the central portion 98 a predetermined dimension when sufficient force (such as a hammer strike) is imparted upon the top wall 102 of the second fastener engagement member 92. The imbedded second projections 94 "grasp" the central portion 98 of the fastener head 114 thereby increasing the rotational motion imparted upon the fastener 90 when a hand tool rotates the second fastener engagement member 92.

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The second fastener engagement member 92 further includes an axially disposed recess 126 having a substantially square configuration, when taking a top view, and dimensioned laterally and longitudinally to cooperatively receive a comparably configured protuberance 128 extending from a bottom wall 129 of a positioning member 130 or alternatively, to cooperatively receive a hand tool protuberance (not pictured). The recess 126 allows rotational force to be imparted upon the second fastener engagement member 92 (and ultimately to the first fastener engagement member 82 and the fastener 90) after a hammer or similar object strikes the top wall 102 of the second fastener engagement member 92 thus forcibly driving the first and second projections 84 and 94 into cooperating portions 88 and 98 of the fastener head 114. Some fasteners 90 resist the insertion of the first and second projections 84 and 94 into the fastener head 114 unless a great amount of force is impacted upon the top wall 102 of the second fastener engagement member 92 which can damage the member 92. To prevent this from occurring, a positioning member 130 is placed upon the top wall 102 of the second fastener engagement member 92.

Referring to figures 33-36, a positioning member 130 fabricated from steel includes a cylindrical side wall 132, a planar top wall 134, a planar bottom wall 129 and an axially disposed, substantially square configured protuberance 128 extending therefrom. The protuberance 128 is snugly inserted into the recess 126 of the second fastener engagement member 92 thereby maintaining the position of the positioning member 130 relative to the second fastener engagement member 92 when a hammer or similar force strikes the top wall 134 of the positioning member 130. The positioning member 130 is a solid piece of metal that resists damage while protecting the second fastener engagement member 92. Upon inserting the first

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and second projections 84 and 94 into the fastener head 114, the positioning member 130 is removed and a square configured protuberance from a hand tool inserted into the recess 126 thereby providing rotary motion to the peripheral and central portions 88 and 98 of the fastener head 114. When the fastener 90 is being removed and a sufficient quantity of the fastener 90 has been extracted from a workpiece, less rotary motion is required to totally remove the fastener 90 from the workpiece. Thus, the second fastener engagement member 92 may be removed from the first fastener engagement member 82, and the hand tool protuberance inserted into the aperture 104 in the first member 82 thereby simplifying the extraction of the fastener 90 by utilizing only the first fastener engagement member 82 to remove the fastener 90.

In operation, the alternative fastener impact driver device 80 is utilized when a fastener head 114 (in particular a one way fastener head) is configured, deformed, corroded or otherwise damaged to such a degree that the fastener impact driver device 10 described above provides insufficient engagement and/or gripping capability between the fastener engagement member 12 and the fastener head 114 thereby failing to rotate and extract the fastener 90 from a workpiece. When utilizing the alternative fastener impact driver device 80, the user first selects one of a plurality of sequentially sized first fastener engagement member 82. The selected first fastener engagement member 82 is configured and dimensioned to cause first projections 84 of the first member 82 to engage a peripheral portion 88 of the fastener head 114. The first fastener engagement member 82 is then set upon the fastener head 114. The user then selects one of a plurality of sequentially sized second fastener engagement members 92. The selected second fastener engagement member 92 is configured and dimensioned to cause second projections 94 of the second member 92 to engage a central portion 98 of the fastener head 114, and to cause a

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bottom wall 100 of the second member 92 to engage a top wall 87 of the first member 82  
irrespective of the configuration of the fastener head 114. The second fastener engagement  
5 member 92 includes a protuberance 124 that snugly inserts into and through an aperture 104 that  
extends through the first fastener engagement member 92 to maintain the axial position of the  
10 second member 92 upon the first member 82 and to allow the second projections 94 to engage  
the central portion 98 of the fastener head 114. Upon disposing the second member 92 upon the  
first member 82, a positioning member 130 having a protuberance 128 extending from a bottom  
15 wall 129, is axially aligned with and secured to the second member 92 when the protuberance  
128 is snugly inserted into an axially aligned recess 126 in a top wall 102 of the second member  
92. A hammer is then struck upon the top wall 134 of the positioning member 130 until the first  
20 projections 84 of the first fastener engagement member 82 and the second projections 94 of the  
second fastener engagement member 92 sufficiently penetrate respective peripheral and central  
25 portions 88 and 98 of the fastener head 114 to facilitate the removal of the fastener 90 from a  
workpiece. The positioning member 130 is removed from the second fastener engagement  
member 92 and a hand tool having a substantially similar protuberance extending therefrom is  
30 snugly inserted into the recess 126 in the second member 92. The user then rotates the hand tool  
such that rotary motion is imparted upon the second member 92 which in turn imparts rotary  
35 motion upon the first member 82 thereby causing the first and second projections 84 and 94 to  
impart rotary motion upon the fastener head 114 to extract the fastener 90 from a workpiece.

40 Although the above description details the removal of a fastener 90 from a workpiece, the  
alternative fastener impact driver device 80 can also be used to tighten or insert fasteners having  
varying head configurations into a workpiece. Further, a third fastener engagement member

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could be added by reducing the dimensions of the first and second engagement members thus promoting smaller fastener engagement surfaces to facilitate more engagement between predetermined portions of the fastener head and corresponding projections of the three engagement members.

Thus, the foregoing description is for purposes of illustration only and is not intended to limit the scope of protection accorded this invention. The scope of protection is to be measured by the following claims, which should be interpreted as broadly as the inventive contribution permits.

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CLAIMS

1           1.     A fastener impact driver comprising:  
2     a fastener engagement member having a plurality of projections disposed about a lower portion  
3     that engages a peripheral portion of a fastener; and  
4           a positioning member having an upper portion that ultimately receives a force thereupon,  
5     said positioning member having a lower portion that engages a cooperating upper portion of said  
6     fastener engagement member whereby a force imparted upon said upper portion of said  
7     positioning member ultimately forces said projections of said fastener engagement member into  
8     the fastener whereupon said positioning member is removed from said fastener engagement  
9     member and a hand tool is removably secured to said fastener engagement member to impart  
10    rotary force to said fastener engagement member thereby removing the fastener from or inserting  
11    the fastener into a workpiece.

1           2.     The device of claim 1 wherein said upper portion of said fastener engagement  
2     member includes means for removably receiving said positioning member.

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1           3.     The device of claim 2 wherein said removable receiving means includes an axially  
2 disposed recess having a configuration that promotes the transfer of rotary force from the hand  
3 tool to said fastener engagement member.

1           4.     The device of claim 3 wherein said positioning member includes an axially  
2 disposed protuberance configured to cooperatively engage said recess in said upper portion of  
3 said fastener engagement member whereby the axial orientation of said positioning member  
4 relative to said fastener engagement member is maintained irrespective of the quantity of force  
5 ultimately imparted upon said upper portion of said positioning member.

1           5.     The device of claim 1 wherein said projections are configured to rotationally  
2 penetrate corresponding portions of the fastener whereby said fastener engagement member  
3 extracts the fastener when sufficient rotary force is imparted upon said fastener engagement  
4 member.

1           6.     The device of claim 1 wherein said projections are arcuately configured.

1           7.     A device for imparting rotary motion upon a fastener comprising:  
2 a first fastener engagement member having an axially disposed aperture, a plurality of  
3 first projections disposed about a lower portion, and an upper portion that ultimately receives a  
4 force thereupon that forces said first projections into a corresponding peripheral portion of the  
5 fastener; and  
6 a second fastener engagement member having a plurality of second projections disposed  
7 about a bottom portion to engage a central portion of the fastener, a peripheral planar lower  
8 portion that engages said upper planar portion of said first fastener engagement member, and an  
9 upper planar portion that ultimately receives a force thereupon that forces said first and second  
10 projections into corresponding peripheral and central portions of the fastener, said bottom  
11 portion of said second fastener engagement member extending axially through an aperture in said  
12 first fastener engagement member to ultimately engage the central portion of the fastener.

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1           8.     The device of claim 7 wherein said upper planer portion of said second fastener  
2 engagement member includes means for removably receiving a positioning member thereupon.

1           9.     The device of claim 8 wherein said removable receiving means includes an axially  
2 disposed recess.

1           10.    The device of claim 8 wherein said positioning member includes an axially  
2 disposed protuberance configured to cooperate with said recess in said upper planer portion of  
3 said second fastener member whereby the axial orientation of said positioning member relative to  
4 said second fastener engagement member is maintained irrespective of the quantity of force  
5 ultimately imparted upon said upper portion of said positioning member.

1           11.    The device of claim 7 wherein said first projections are configured to rotationally  
2 penetrate corresponding portions of the fastener whereby said first fastener engagement member  
3 imparts rotational force upon the peripheral portion of the fastener.

1           12.    The device of claim 11 whereby said first projections are arcuately configured.

1           13.    The device of claim 7 wherein said second projections are configured to axially  
2 penetrate corresponding portions of the fastener whereby said second fastener engagement  
3 member imparts rotational force upon the central portion of the fastener.

1           14.    The device of claim 13 wherein said second projections are pyramid configured.

1           15.    A method for engaging multiple portions of a fastener, said method comprising  
2 the steps of:  
3                providing a first fastener engagement member having an axially disposed  
4 aperture, a plurality of first projections disposed about a lower portion, said first projections  
5 engaging a peripheral portion of the fastener, and an upper portion that ultimately receives a

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6 force thereupon that forces said first projections into a corresponding peripheral portion of the  
7 fastener; and providing a second fastener engagement member having a plurality of second  
8 projections disposed about a bottom central portion to engage a central of the fastener, a  
9 peripheral planar lower portion that engages said upper planar portion of said first fastener  
10 engagement member, and an upper planar portion that ultimately receives a force thereupon that  
11 forces said first and second projections into corresponding peripheral and central portions of the  
12 fastener, said bottom central portion of said second fastener engagement member extending  
13 axially through said aperture of said first fastener engagement member to ultimately engage the  
14 central portion of the fastener.

1 16. The method of claim 15 wherein the step of providing a second fastener  
2 engagement member having an upper planar portion includes the step of providing means for  
3 removably receiving a positioning member thereupon.

1 17. The method of claim 16 wherein the step of providing removable receiving means  
2 includes the step of providing an axially disposed recess.

1 18. The method of claim 17 wherein the step of providing means for removably  
2 receiving a positioning member includes the step of providing said positioning member with an  
3 axially disposed protuberance configured to cooperate with said recess.

1 19. The method of claim 15 wherein the step of providing first projections includes  
2 the step of configuring said first projections to rotationally penetrate corresponding portions of  
3 the fastener whereby said first fastener engagement member imparts rotational force upon the  
4 peripheral portion of the fastener.

1 20. The method of claim 19 wherein the step of configuring said first projections  
2 includes the step of arcuately configuring said first projections.

1 21. The method of claim 15 wherein the step of providing second projections includes

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2 the step of configuring said second projections to axially penetrate corresponding portions of the  
3 fastener whereby said second fastener engagement member imparts rotational force upon the  
4 central portion of the fastener.

1 22. The method of claim 21 wherein the step of configuring said second projections  
2 includes the step of configuring said second projections to include a relatively large base and a  
3 relatively pointed top.

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### ABSTRACT

A fastener impact driver device 10 includes a fastener engagement member 12 having a plurality of projections 14 disposed about a lower portion 16 that engages a corresponding peripheral portion 18 of a fastener 20. The device 10 further includes a positioning member 22 having an upper portion 24 that ultimately receives a force thereupon, and a lower portion 26 that engages a cooperating upper portion 28 of the fastener engagement member 12 whereby a force such a hammer strike is imparted upon the upper portion 24 of the positioning member 22 to drive the projections 14 of the fastener engagement member 12 into the head 44 of the fastener 20 without damage of the fastener engagement member 12, whereupon the positioning member 22 is removed from the fastener engagement member 12 and a hand tool is removably secured to the fastener engagement member 12 to impart rotary motion to the member 12 and the fastener 20 thereby removing the fastener 20 from or urging the fastener 20 into a workpiece.

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**DECLARATION FOR PATENT APPLICATION  
WITH POWER OF ATTORNEY**

As below named joint inventors, we hereby declare that:

Our residences, post office addresses and citizenships are as stated below next to our names.

We believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled "IMPACT DRIVER AND FASTENER REMOVAL DEVICE" (Attorney Ref. No. 0052/01433), the specification of which

(check one)        X   is attached hereto.  
  
                                    was filed on \_\_\_\_\_  
                                         as serial No. \_\_\_\_\_  
                                         as was amended on \_\_\_\_\_ (if applicable)

We hereby state that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. We acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, code of Federal Regulations, §1.56 (a).

We hereby claim foreign priority benefits under Title 35, United States Code, §119, of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

| <u>Prior Foreign Application(s)</u>     |                                          |                                                       | <u>Priority Claimed</u>            |                                   |
|-----------------------------------------|------------------------------------------|-------------------------------------------------------|------------------------------------|-----------------------------------|
| <u>                    </u><br>(Number) | <u>                    </u><br>(Country) | <u>                    </u><br>(Day/Month/Year Filed) | <u>                    </u><br>Yes | <u>                    </u><br>No |
| <u>                    </u><br>(Number) | <u>                    </u><br>(Country) | <u>                    </u><br>(Day/Month/Year Filed) | <u>                    </u><br>Yes | <u>                    </u><br>No |
| <u>                    </u><br>(Number) | <u>                    </u><br>(Country) | <u>                    </u><br>(Day/Month/Year Filed) | <u>                    </u><br>Yes | <u>                    </u><br>No |

We hereby claim the benefit under Title 35, United States Code, §120, of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, we acknowledge the duty to disclose material information as defined in title 37, Code of Federal Regulations, §1.56 (a), which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

|                                                |                                              |                                                                       |
|------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <u>                    </u><br>(App. Ser. No.) | <u>                    </u><br>(Filing Date) | Status: <u>                    </u><br>(patented, pending, abandoned) |
| <u>                    </u><br>(App. Ser. No.) | <u>                    </u><br>(Filing Date) | Status: <u>                    </u><br>(patented, pending, abandoned) |

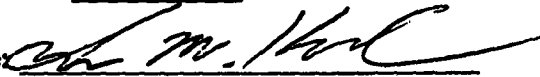
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(App. Ser. No.)      (Filing Date)      Status: (patented, pending, abandoned)

We hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application of any patent issuing thereon.

And we hereby appoint Donald G. Flaynik (Reg. No. 30,836) and Michael J. Cherskov (Reg. No. 33,664), both members of the Bar of the State of Illinois, using the address **CHERSKOV & FLAYNIK, The Civic Opera Building, 20 North Wacker Drive, Chicago, IL 60606** (Telephone 312-621-1330), my attorneys with full power of substitution and revocation, to prosecute this application, and to transact all business in the Patent and Trademark Office connected therewith. It is requested that all correspondence should be directed to **CHERSKOV & FLAYNIK, The Civic Opera Building, 20 North Wacker Drive, Suite 1447, Chicago, IL 60606**.

Full name of joint inventor: Ira M. Kozak

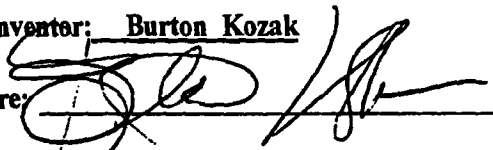
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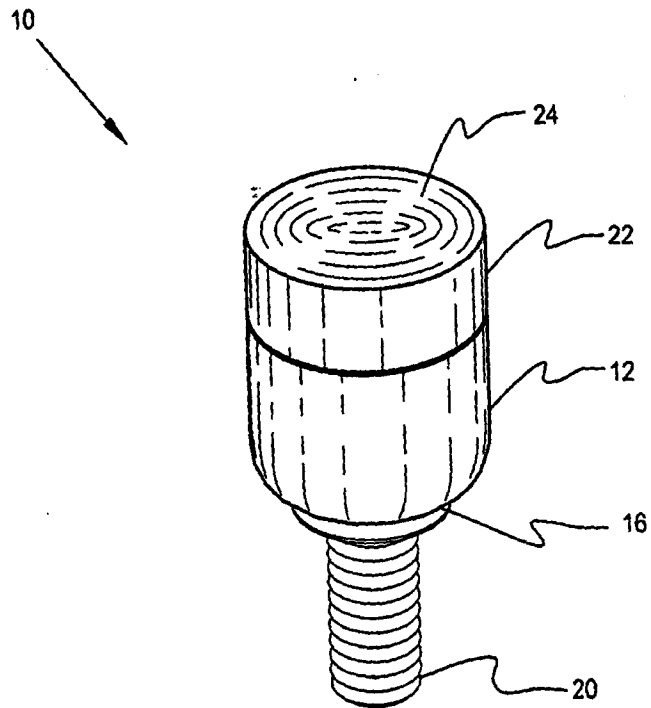
Inventor=s Signature:  Date: 4/22/2004

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Chicago, IL 60610

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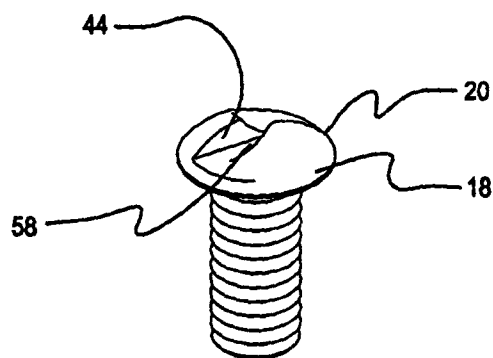
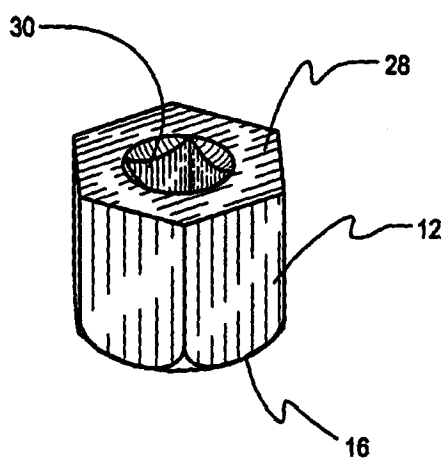
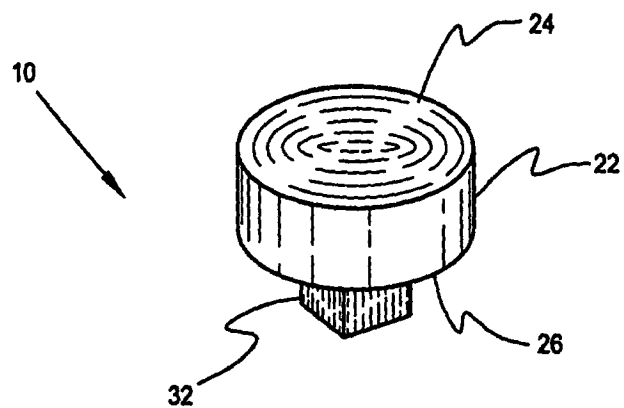
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*Fig. 1*

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*Fig. 2*

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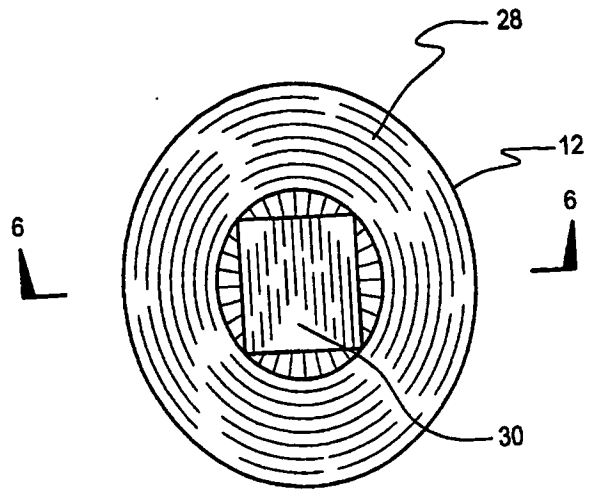


Fig. 3

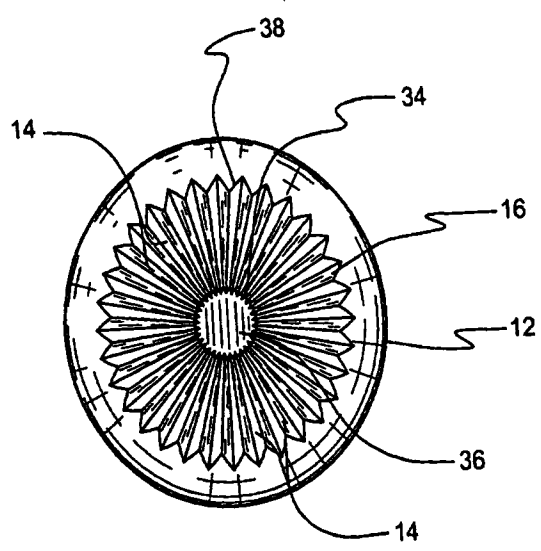
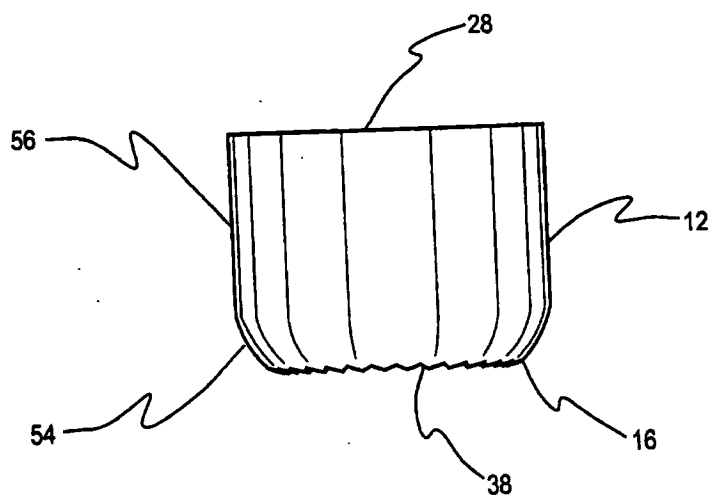
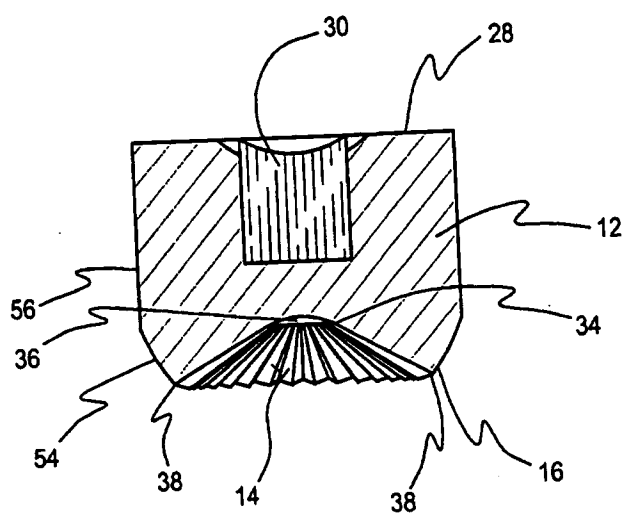


Fig. 4



*Fig. 5*



*Fig. 6*

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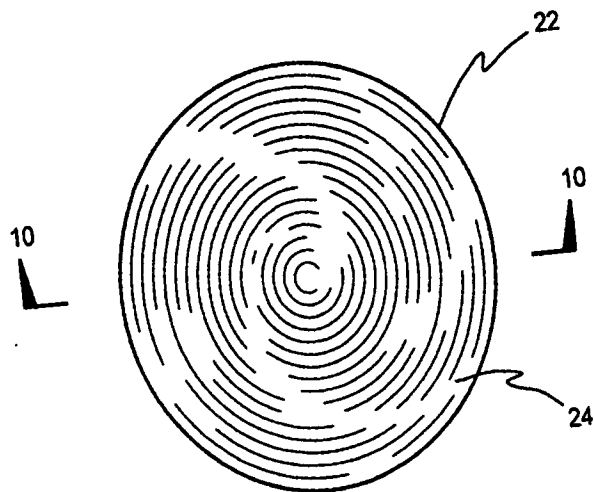


Fig. 7

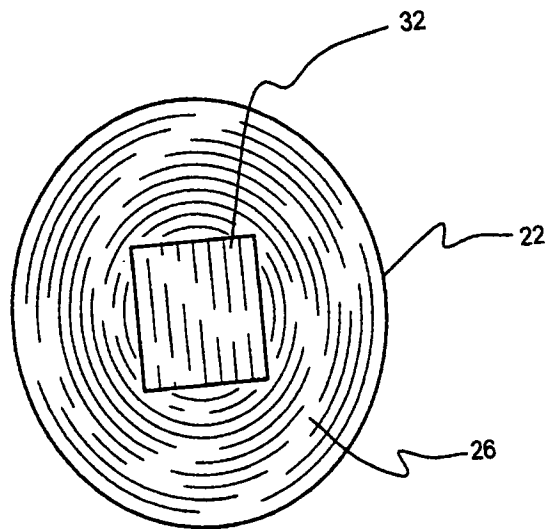
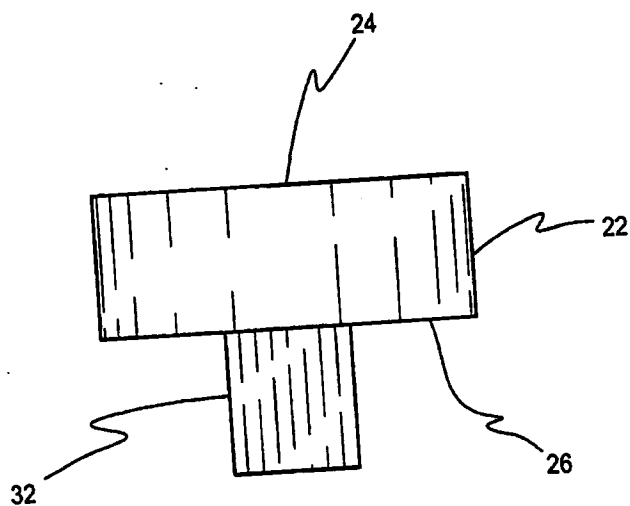
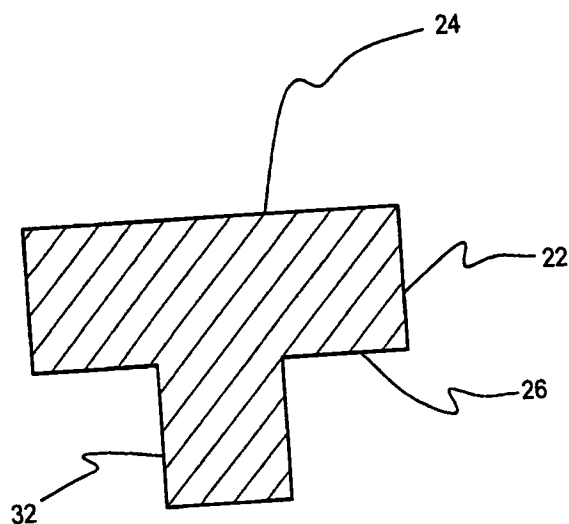


Fig. 8

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*Fig. 9*



*Fig. 10*

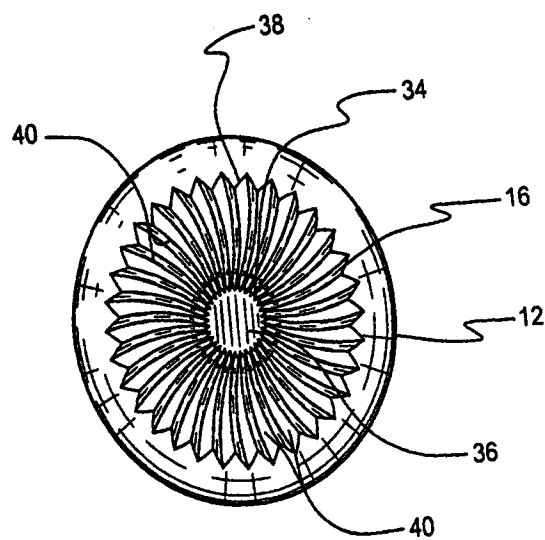
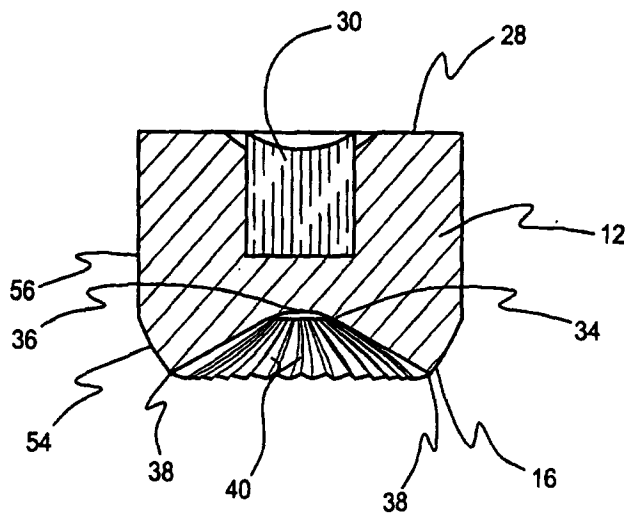


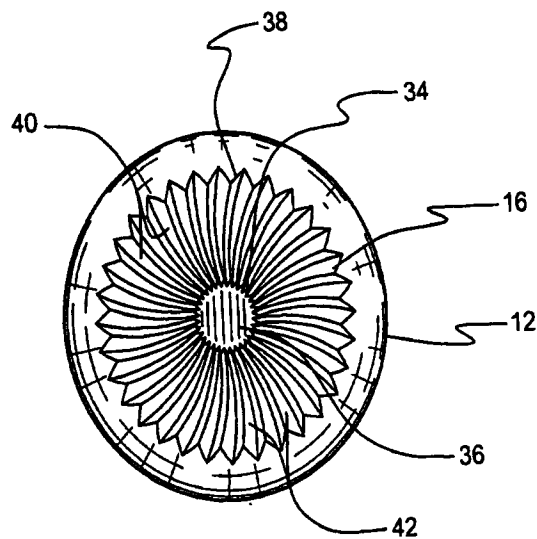
Fig. 11

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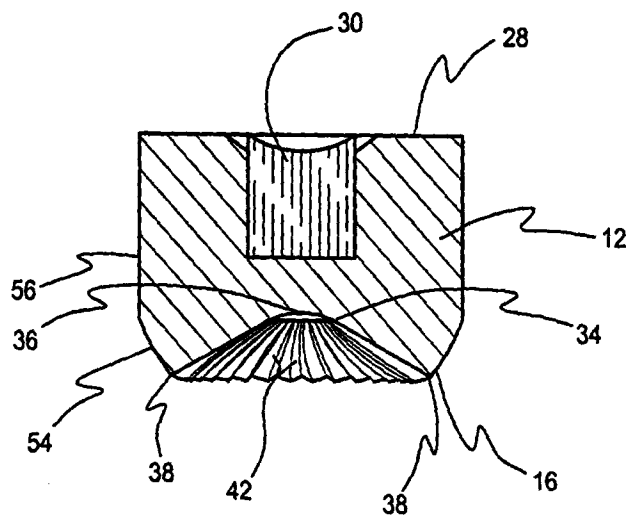
*Fig. 12*

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1293<sup>00</sup>



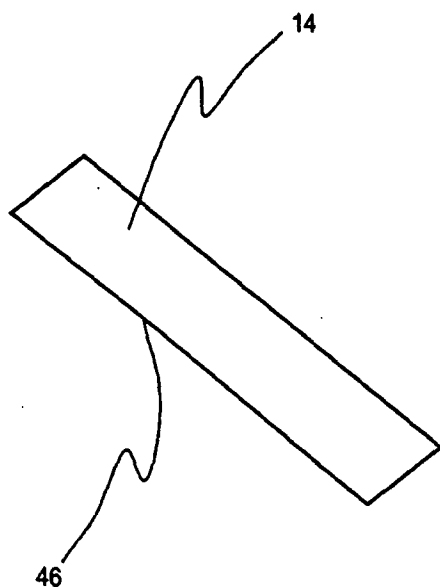
*Fig. 13*

1445

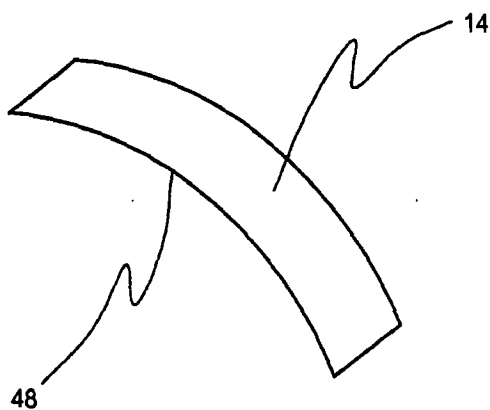


*Fig. 14*

~~145~~  
145 8

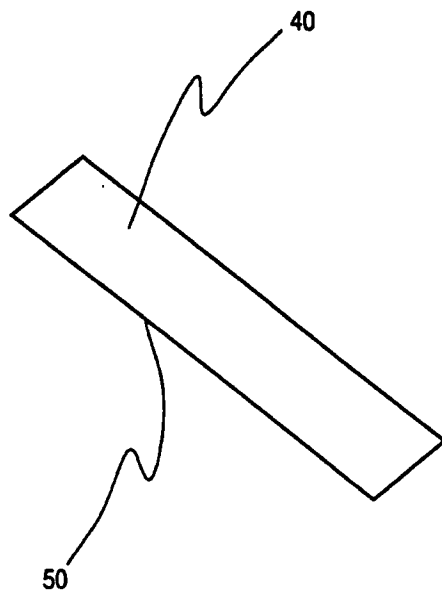


*Fig. 15*

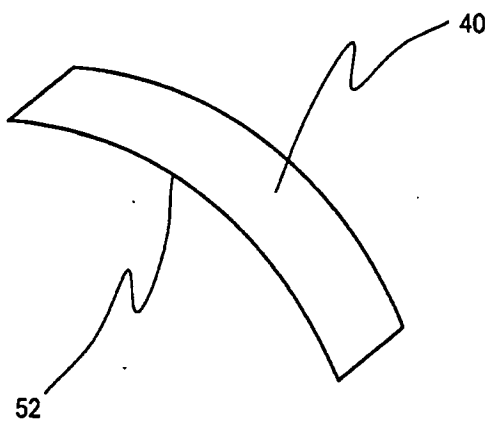


*Fig. 16*

146  
146 6

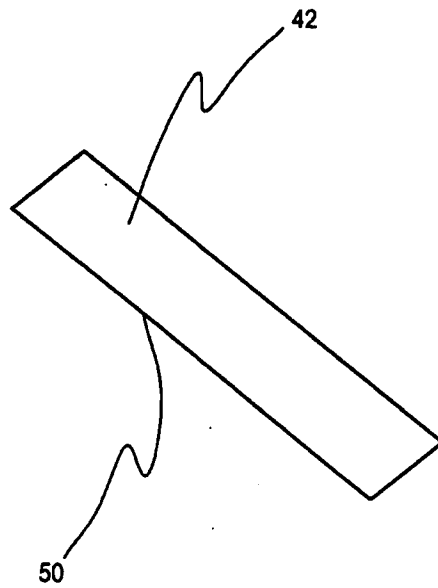


*Fig. 17*

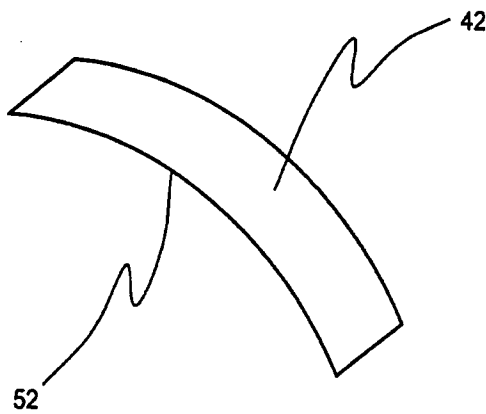


*Fig. 18*

147  
147 62

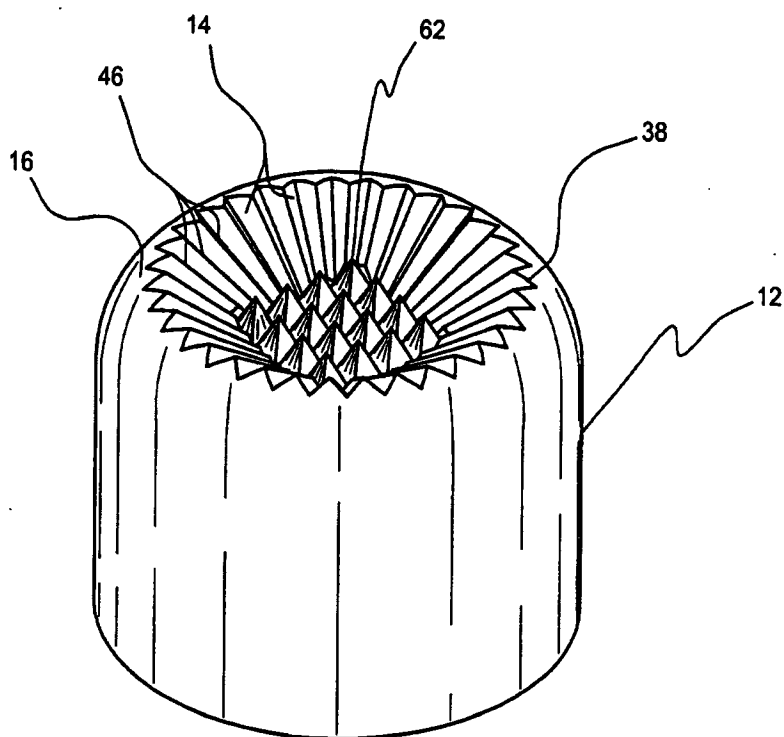


*Fig. 19*



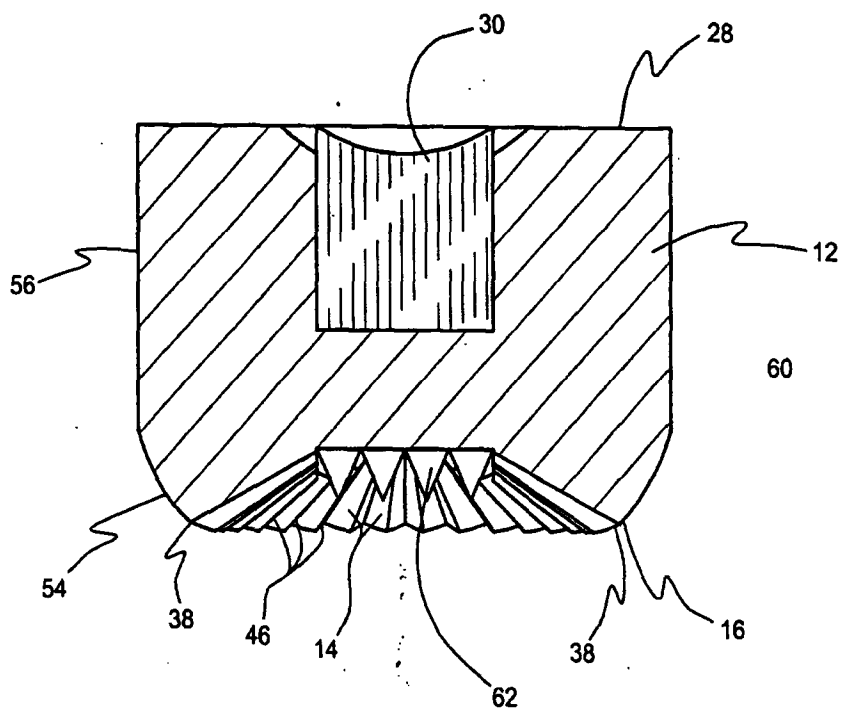
*Fig. 20*

~~148~~  
149 3



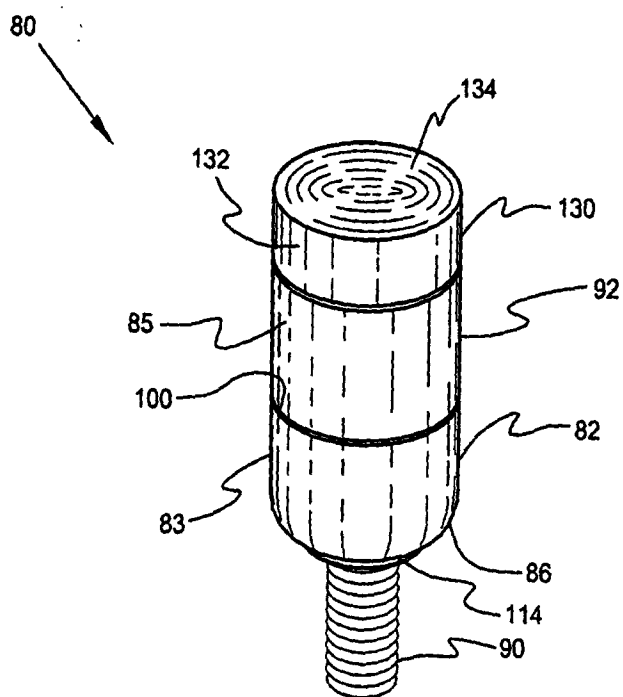
*Fig. 21*

145  
149 4  
6



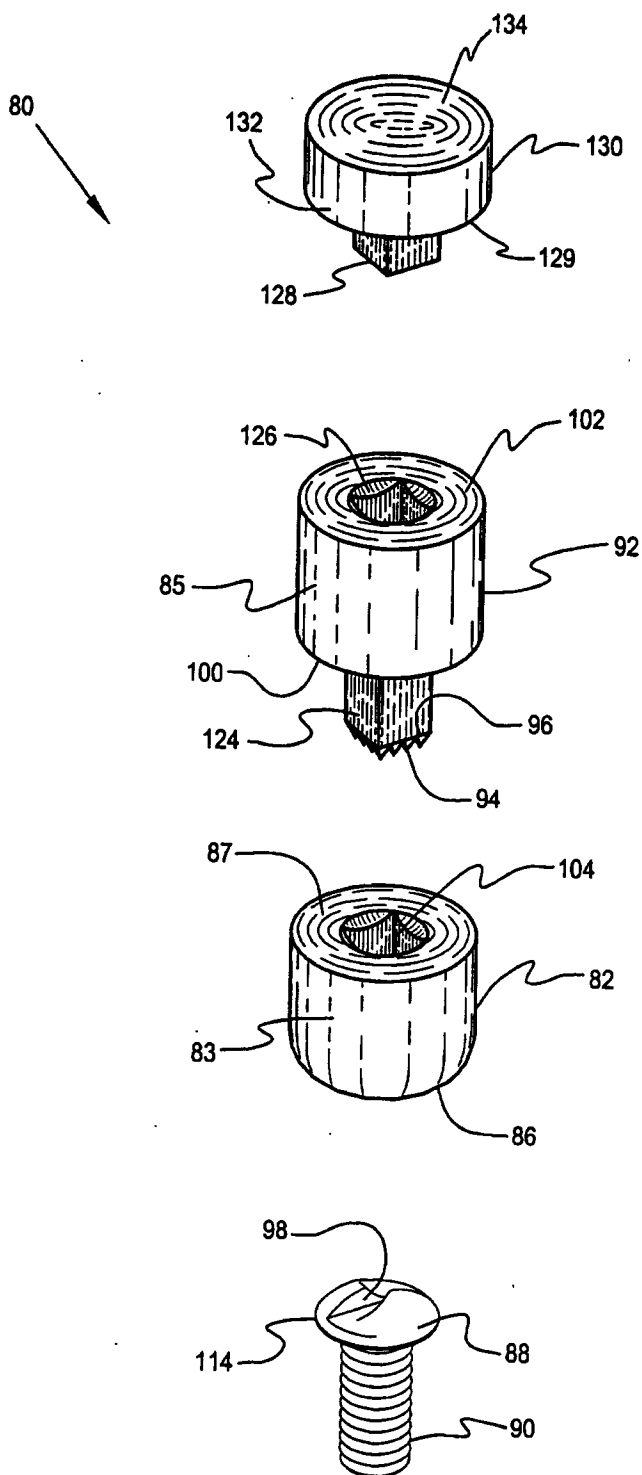
*Fig. 22*

15015



*Fig. 23*

151  
151  
66



*Fig. 24*

1526

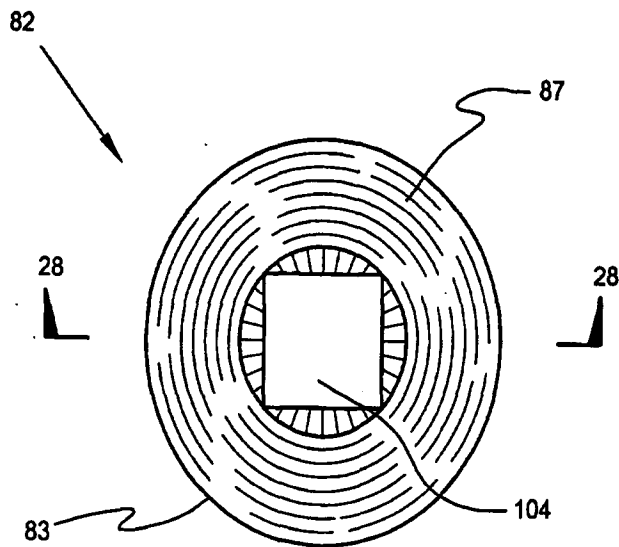


Fig. 25

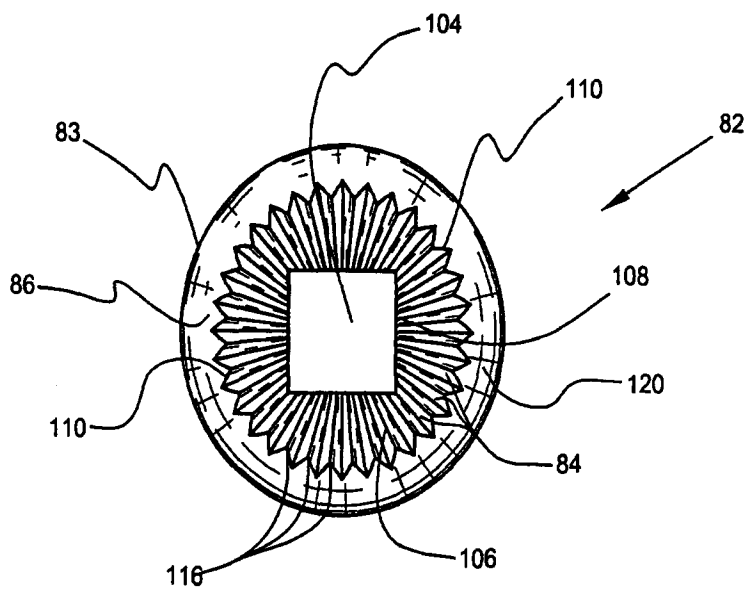
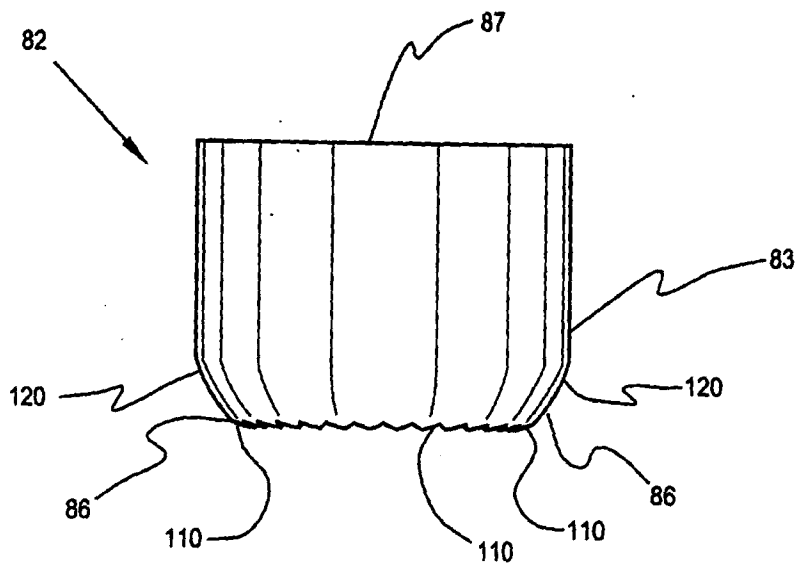
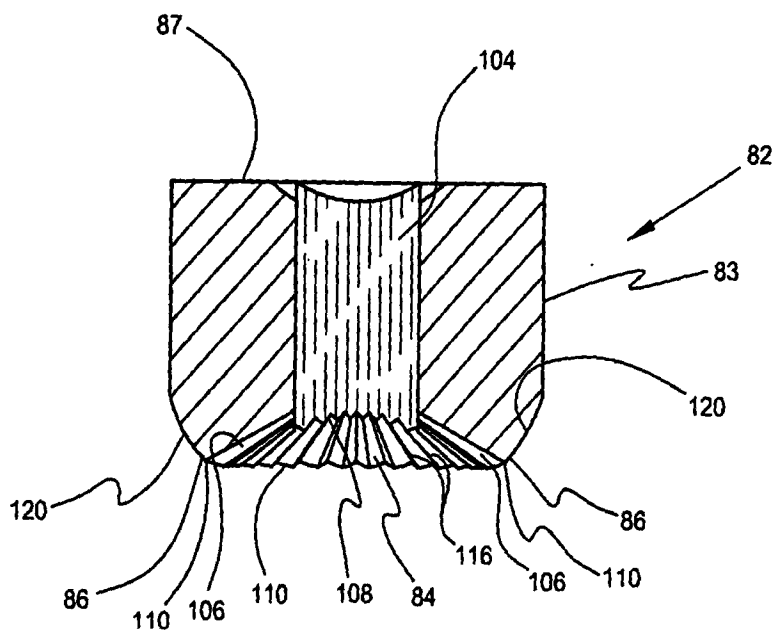


Fig. 26

153-6

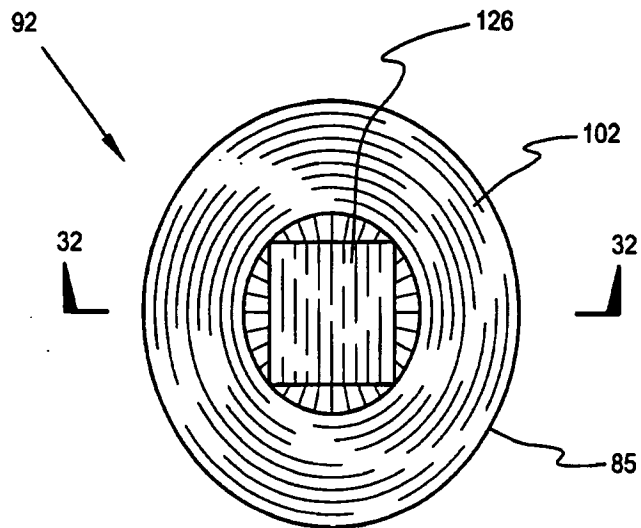


*Fig. 27*

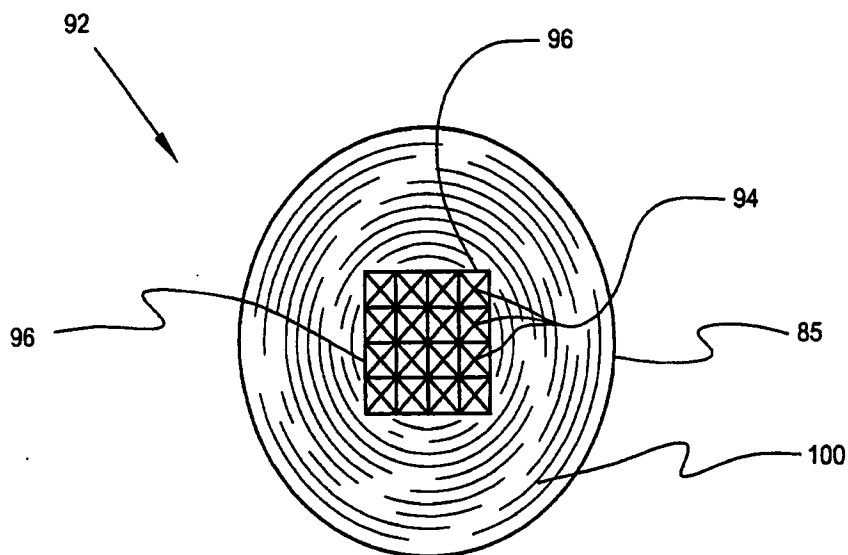


*Fig. 28*

154  
154/06

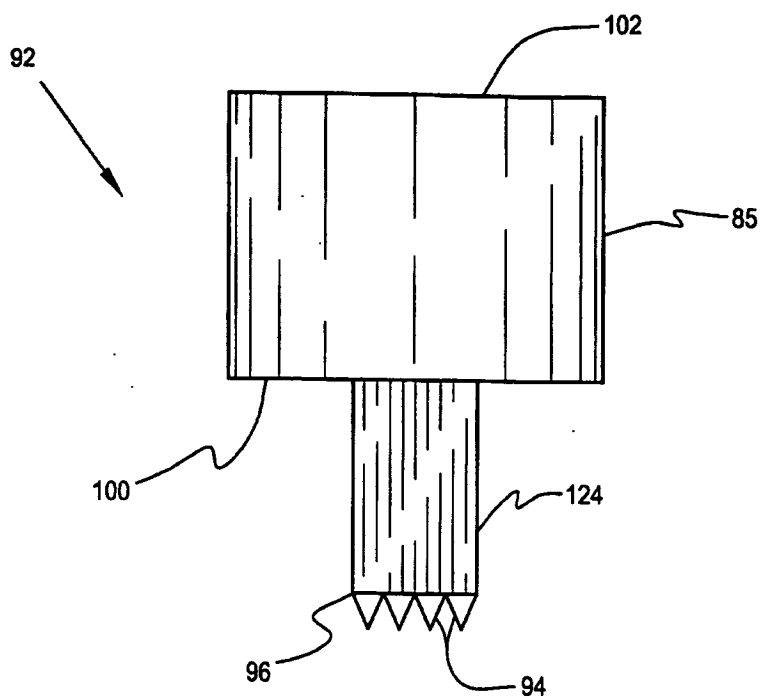


*Fig. 29*

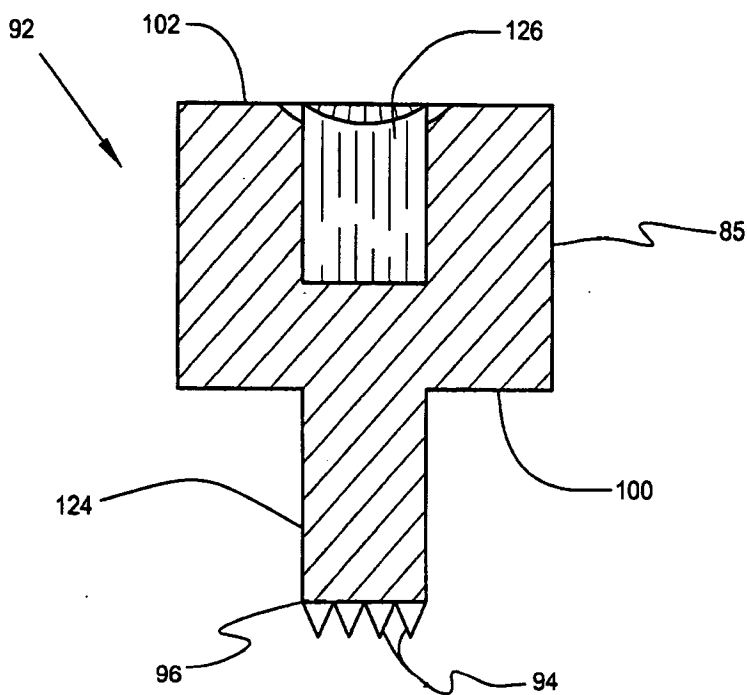


*Fig. 30*

65  
131 R



*Fig. 31*



*Fig. 32*

156

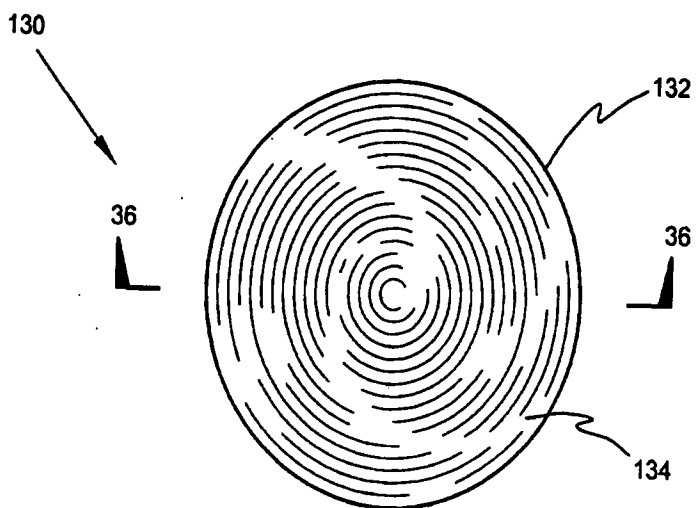


Fig. 33

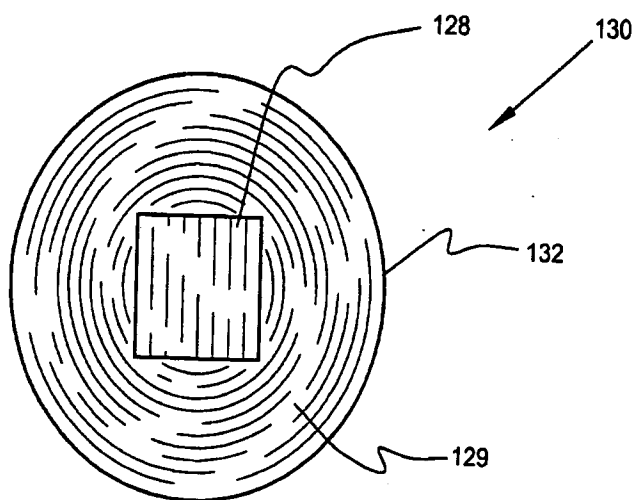
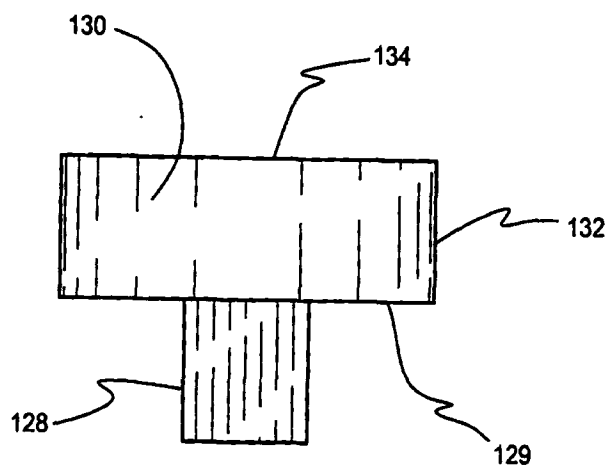
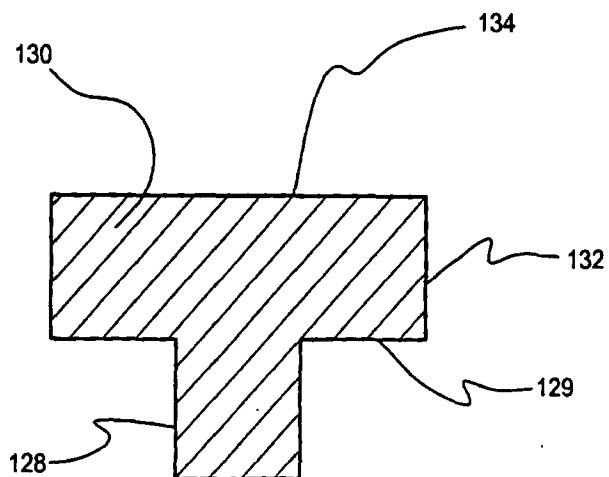


Fig. 34

15A  
15B  
15C



*Fig. 35*



*Fig. 36*

158

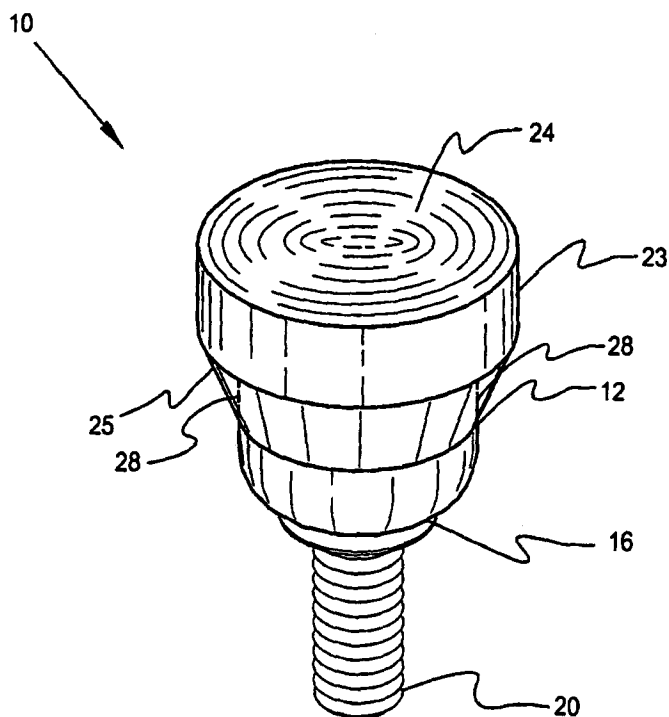


Fig. 37

159

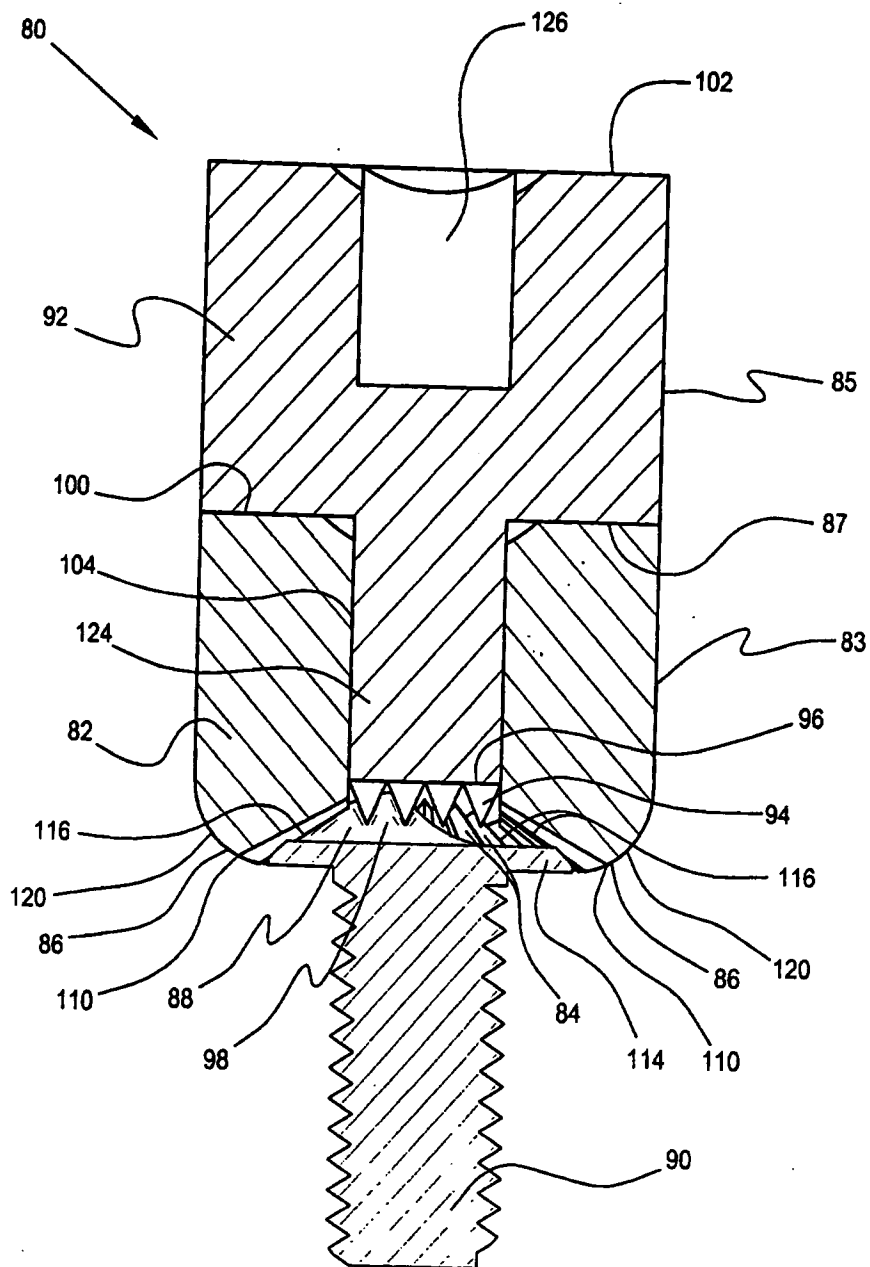


Fig. 38

2020  
Bogotá D C

Doctor(a):  
DILIA MARIA RODRIGUEZ D'ALEMAN.  
Apoderado (a)

**REFERENCIA:**

|               |          |
|---------------|----------|
| Radicación N° | 04-84186 |
| Trámite       | 002      |
| Evento        | 001      |
| Actuación     | 416      |
| Oficio N°     | 853      |
| Folios        | 001      |

Teniendo en cuenta que la solicitud de privilegio de patente que se tramita bajo el expediente indicado en la referencia, reúne los requisitos de forma establecidos en los artículos 26 y 27 de la Decisión 486, de la Comisión de la Comunidad Andina, y en las demás disposiciones vigentes sobre la materia, se envía el extracto de la solicitud a la oficina de comunicaciones para efecto de su publicación en la Gaceta de Propiedad Industrial, conforme lo establece el artículo 40 de la Decisión 486, a partir de 27 de febrero de 2006, por indicación del solicitante.

**Cúmplase**

Dado en Bogotá D C, 12 SET. 2005

  
**ALIX CARMENZA CÉSPEDES DE VERGEL**  
Jefe División de Nuevas Creaciones.

202051

2° EXAMEN DE FORMA, PATENTE DE INVENCION

Radicación N° **04-84186**

Folio 161

Concepto Técnico N° **698**

Clasificación Internacional de Patentes: **B25D 13/00**

Practicado el examen de acuerdo a lo establecido en el Art. 38 de la Decisión 486, se determinó que esta solicitud de **Patente**:

- SI ☒ NO ☐ Contiene un resumen de la invención (Art. 26-e)
- SI ☒ NO ☐ Contiene el título o nombre de la invención (Art. 27-d)
- SI ☒ NO ☐ Contiene la descripción de la invención (Art. 26-b)
- SI ☒ NO ☐ NO ES APLICABLE ☐ Contiene los dibujos necesarios para comprender la invención (Art. 26-d)
- SI ☒ NO ☐ Contiene una o más reivindicaciones (Art. 26-c)
- SI ☐ NO ☐ NO ES APLICABLE ☒ Han sido desarrollados los productos a partir de recursos genéticos o de sus productos derivados de los que cualquiera de los Países Miembros es país de origen (Art. 26-h)
- SI ☐ NO ☐ NO ES APLICABLE ☒ Los productos y o procedimientos han sido obtenidos o desarrollados a partir de los conocimientos tradicionales de las comunidades indígenas, afro americanas, o locales de los Países Miembros, de acuerdo a lo establecido en la Decisión 391 y sus modificaciones y reglamentaciones vigentes (Art. 26-i)
- SI ☐ NO ☒ La invención se refiere a un producto relativo a un material biológico (Art. 26-j)
- SI ☒ NO ☐ NO ES APLICABLE ☐ La prioridad coincide con la materia reivindicada.
- SI ☒ NO ☐ **CUMPLE LOS REQUISITOS TÉCNICOS**

OBSERVACIONES Y OTROS: SI ☐ NO ☐ Ver hoja(s) anexa(s)

EXAMINADOR TÉCNICO: 202051

Bogotá D C, septiembre 5 de 2005.