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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 07-032835-00001-0000

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Act 329 CTOINFORMACION Folios 59

Trámite : 002

Evento : 001

Actuación : 411

Referencia Expediente No 07.032.835
Asunto Solicitud de patente para **MONTAJE DE DESGASTE**
Solicitante : **ESCO CORPORATION**
Fecha de Solicitud : 30 de marzo de 2007

1 Yo, Emilio FERRERO, en mi condición de apoderado de la sociedad solicitante, **ESCO CORPORATION**, presento junto con este memorial los siguientes documentos

- Documento de Prioridad No 60/787,268 del 30 de marzo de 2006 de Estados Unidos de América a nombre de mi representada, la sociedad **ESCO CORPORATION**
- Documento en que consta la cesión del derecho a la patente efectuado por los inventores en favor de la sociedad **ESCO CORPORATION**.

2. De acuerdo con lo anterior, comedidamente solicito a Usted proseguir con el trámite de este asunto y ordenar la publicación de la solicitud de patente identificada en la referencia

Señora Jefe,

EMILIO FERRERO

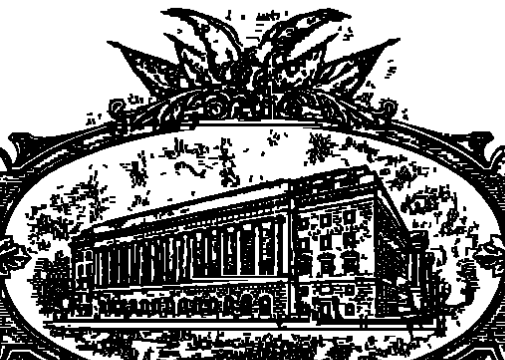
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No M-2007-102806\SCT

NIT 860.041.367-3

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UNITED STATES DEPARTMENT OF COMMERCE

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United States Patent and Trademark Office

January 29, 2007

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: 60/787,268

FILING DATE: March 30, 2006

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS US60/787,268

By Authority of the
Under Secretary of Commerce for Intellectual Property
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T. Wallace
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PTO/SB/16 (12-04)

Approved for use through 07/31/2009. OMB 0851-0032
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No. EQ 287102814 US

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Christopher M		Carpenter		Tualatin, Oregon	
Donald M.		Conklin		Lake Oswego, Oregon	
☐ Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
WEAR ASSEMBLY					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
☒ Customer Number 54327					
OR					
☐ Firm or Individual Name					
Address					
Address					
City		State		ZIP	
Country		Telephone		Fax	
ENCLOSED APPLICATION PARTS (check all that apply)					
☒ Specification Number of Pages 22		☐ CD(s), Number _____			
☒ Drawing(s) Number of Sheets 20		☐ Other (specify) _____			
☒ Application Data Sheet. See 37 CFR 1.76					
Application Size Fee: If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 C.F.R. 1.16(s).					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
☐ Applicant claims small entity status. See 37 CFR 1.27.					
☐ A check or money order is enclosed to cover the filing fees					
☒ The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 50-3585					
☐ Payment by credit card. Form PTO-2036 is attached.					
TOTAL FEE Amount (\$) 200.00					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
☒ No					
☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,
SIGNATURE

Steven P. Schad

Date March 30, 2008

TYPED or PRINTED NAME Steven P. Schad

REGISTRATION NO. 32,550
(if appropriate)

TELEPHONE 503.778 6225

Docket Number: 348-PROV

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. 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 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any statements on the amount of time you require to complete the 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 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Effective on 12/08/2004.

as pursuant to the Consolidated Appropriations Act, 2005 (P.L.R. 4816).

FEE TRANSMITTAL
for FY 2005☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$ 200.00

Complete if Known

Application Number	tbd
Filing Date	March 30, 2006
First Named Inventor	Christopher M. Carpenter
Examiner Name	
Art Unit	
Attorney Docket No.	348-PROV

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify) : _____☒ Deposit Account Deposit Account Number 50-3585 Deposit Account Name: ESCO Corporation

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s)☒ Credit any overpayments

Under 37 CFR 1.16 and 1.17

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1. FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	200.00

2. EXCESS CLAIM FEES**Fee Description**

Each claim over 20 (including Reissues)

Each independent claim over 3 (including Reissues)

Multiple dependent claims

Total Claims	Extra Claims	Fee(\$)	Fee Paid (\$)
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_____ - 20 or HP= _____ x _____ = _____

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee(\$)	Fee Paid (\$)
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_____ - 3 or HP= _____ x _____ = _____

HP = highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
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_____ - 100 = _____ / 50 = _____ (round up to a whole number) x _____ = _____

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): _____

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	32,550	Telephone	503.778.6225
Name (Print/Type)	Steven P. Schad			Date	March 30, 2006

This collection of information is required by 37 CFR 1.136. 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 30 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 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

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WEAR ASSEMBLY

FIELD OF THE INVENTION

[01] The present invention pertains to a wear assembly for securing a wear member to excavating equipment.

BACKGROUND OF THE INVENTION

[02] Wear parts are commonly attached along the digging edges of excavating equipment, such as excavating buckets or cutterheads, to protect the equipment from wear and to enhance the digging operation. The wear parts may include excavating teeth, shrouds, etc. Such wear parts typically include a base, a wear member, and a lock to releasably hold the wear member to the base.

[03] In regard to excavating teeth, the base includes a forwardly projecting nose for mounting the wear member. The base may be formed as an integral part of the digging edge or may be formed as one or more adapters that are fixed to the digging edge by welding or mechanical attachment. The wear member is a point which fits over the nose. The point narrows to a front digging edge for penetrating and breaking up the ground. The assembled nose and point cooperatively define an opening into which the lock is received to releasably hold the point to the nose.

[04] Such wear members are commonly subjected to harsh conditions and heavy loading. Accordingly, the wear members wear out over a period of time and need to be replaced. Many designs have been developed in an effort to enhance the strength, stability, durability, penetration, safety, and/or ease of replacement of such wear members with varying degrees of success.

SUMMARY OF THE INVENTION

[05] The present invention pertains to an improved wear assembly for securing wear members to excavating equipment for enhanced stability, strength, durability, penetration, safety, and ease of replacement.

[06] In one aspect of the invention, the nose and socket are each provided with offset upper and lower stabilizing surfaces to provide a stable but streamlined design that provides higher strength, better penetration, and an improved flow of material into the excavator as compared to conventional teeth. In one example, the upper and lower stabilizing surfaces are offset and at overlapping depths to reduce the overall depth of the assembly while maintaining high strength and a stable coupling.

[07] In another aspect of the invention, front and rear stabilizing surfaces of the nose and socket are each inclined to resist loads on the wear member with vertical components (herein called vertical loads) and side components (herein called side loads). In addition, shifting loads can be better resisted by such inclined surfaces with less relative motion between the nose and the socket for greater stability and less wear. In one preferred construction, the nose and socket have V-shaped rear stabilizing surfaces and inverted V-shaped front stabilizing surfaces.

[08] In one other aspect of the invention, stabilizing shoulders formed integrally with the body of the wear member bear against complementary supports on the nose to increase stability and strength of the assembly. The shoulders are substantially parallel to the longitudinal axis of the nose to form a highly stable formation that resists vertically applied loads on the wear member. Unlike ears that project rearward from the body of the wear member, the shoulders are backed by the

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body of the wear member for additional strength. The use of shoulders also requires less metal than ears.

[09] In another aspect of the invention, the nose and socket each includes a first faceted shape at the front end that transitions into a second increased-faceted shape at the rear end. In one preferred example, the front end is formed generally as a triangle that transitions into a hexagonal shape at the rear end of the socket and nose. The use of such shape changing formations enables the use of a slender wear assembly for good penetration combined with high strength characteristics.

[10] In one other aspect of the invention, the nose and socket each includes a generally triangular-shaped front stabilizing end to provide a highly stable front connection between the nose and wear member for both vertical and side loading. In one preferred example, the triangular stabilizing end is formed by a generally horizontal lower surface and an inverted V-shaped upper surface. This construction also virtually eliminates wear through of the wear member to the front corners of the nose so as to provide a longer usable life for the wear member and nose.

[11] In another aspect of the invention, the lower wall portions of the nose and socket narrow as they extend rearward to lie within the shadow of the front end of the wear member in certain digging operations and, thus, expose the rear supporting portion of the wear member to less wear.

[12] In one other aspect of the invention, the lock is integrally secured to the wear member for shipping and storage as a single integral component. The lock is movable between hold and release positions to accommodate replacing of the wear member when needed, and securable in the hold position for shipping and storage purposes. As a result, fewer components are needed to install replacement wear

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parts, which results in less shipping costs, reduced storage needs, and less inventory concerns.

[13] In a further aspect of the invention, the lock and wear member can be maintained as a single integral component through installation as well as storage and shipping; that is, the lock can be secured in a release position for installation as well as in a hold position for shipping and storage. This arrangement enables easier installation of the wear member with less risk of losing the lock.

[14] In another aspect of the invention, the lock is swung about a generally longitudinal axis for easy use and stability. In the hold position, the lock fits within a cavity defined in a sidewall of the nose. The provision of a conventional through-hole is avoided for increased strength of the nose. Moreover, the sides of the lock form a secure and stable locking arrangement without substantial loading of the hinge or latch portions of the lock. In addition, the lock is operable without a hammer for ease of use and enhanced safety.

[15] In another aspect of the invention, the lock is formed with a pivot support and a biasing member to permit not only pivotal movement of the lock between hold and release positions, but also a shifting movement to permit latching in a hold position and/or retaining of the lock in the release position. In a further aspect of the invention, the lock body defines at least one pry slot whereby a pry tool can securely engage the lock to shift and pivot the lock for easy installation and removal.

BRIEF DESCRIPTION OF THE DRAWINGS

[16] Figure 1 is a perspective view of a wear assembly in accordance with the present invention.

[17] Figure 2 is a side view of the wear assembly.

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- [18] Figure 3 is a cross-sectional view of the wear assembly taken along lines 3-3 in Figure 1.
- [19] Figure 4 is a perspective view of a base of the wear assembly.
- [20] Figures 5 and 6 are each a perspective view of the nose of the base.
- [21] Figure 7 is a top view of the nose.
- [22] Figure 8 is a side view of the base.
- [23] Figure 9 is a side view of the nose.
- [24] Figures 10 and 11 are each a front view of the base.
- [25] Figure 12 is a cross-sectional view of the base taken along line 12-12 in Figure 11.
- [26] Figure 13 is a cross-sectional view of the base taken along line 13-13 in Figure 8.
- [27] Figure 14 is a perspective view of a wear member of the wear assembly.
- [28] Figure 15 is an enlarged view of the part of the wear member within the circle c in Figure 14.
- [29] Figure 16 is a rear view of the wear member.
- [30] Figure 17 is a side view of the wear member.
- [31] Figure 18 is a cross-sectional view taken along line 18-18 in Figure 16.
- [32] Figure 19 is a cross-sectional view taken along line 19-19 in Figure 16.
- [33] Figure 20 is a perspective view of a lock for the wear assembly.
- [34] Figure 21 is a rear perspective view of the lock.
- [35] Figure 22 is a cross-sectional view taken along line 22-22 in Figure 21.
- [36] Figure 23 is a side view of the lock.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[52] The present invention pertains to a wear assembly 10 for releasably attaching a wear member 12 to excavating equipment (not shown). In this application, wear member 12 is described in terms of a point for an excavating tooth that is attached to a lip of an excavating bucket. However, the wear member could be in the form of other kinds of wear parts (e.g., shrouds) or attached to other excavating equipment (e.g., dredge cutterheads). Moreover, relative terms such as forward, rearward, up or down are used for convenience of explanation with reference to Figure 1; other orientations are possible.

[53] In one embodiment (Figs. 1-27), the wear member or point 12 is adapted to fit on a nose 14. The nose is the front portion of a base 15 that is fixed to a bucket (not shown) or other equipment. The rear mounting portion 19 of base 15 can be fixed to the bucket in a number of common ways. In the illustrated example (Figs. 1-4, 8 and 12), base 15 includes a rearward leg 21 that extends over and is welded to the lip of the bucket. Nevertheless, the base may include more than one leg and be mechanically fixed to the bucket lip, such as by a Whisler-style lock. Additionally, the base could be formed as an integral portion of the lip (not shown), such as by being cast with the lip. When the base is secured to the lip by welding or a locking mechanism, the base is typically called an adapter. The base can also consist of a plurality of interconnected adapters. Although wear member 12 includes a socket 16 to receive nose 14 in order to minimize the material to be discarded when the wear member needs to be replaced (Fig. 3), the nose and socket could be switched so that the base defines a socket for receiving a nose of the wear member. In either case, wear member 12 is releasably secured to nose 14 by a lock 17.

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[54] Nose 14 includes a body 18 and a front stabilizing end 20 (Figs. 3-13). The stabilizing end 20 preferably has a generally triangular shape with a horizontal lower surface 22 and a pair of upper surfaces 24 collectively defining an inverted V-shape. The lower and upper surfaces 22, 24 are front stabilizing surfaces that are substantially parallel to the longitudinal axis 26 of the nose. The term "substantially parallel" is intended to include surfaces that diverge rearwardly from axis 26 at a small angle (e.g., of about 1-7 degrees) for manufacturing purposes. A small divergence may also ease removal of the wear member from the nose. In one preferred embodiment, each stabilizing surface 22, 24 diverges rearwardly at an angle of about 2-3 degrees to axis 26.

[55] It is common in digging operations for the teeth to be forced forward and upward through the ground. As a result, the primary directions in which excavating teeth are commonly loaded are rearward and downward. Front face 27 of nose 14 abuts front surface 29 in socket 16 to primarily resist rearward loads. Upper stabilizing surfaces 24 are substantially parallel to axis 26 to provide stable resistance to downwardly applied vertical loads on the front end of wear member 12. Also, due to irregularities in the ground, rocks, and other impediments, the teeth also tend to experience sideward loads as well as loads that shift. Upper stabilizing surfaces 24 are inclined to resist both downward vertical loads and side loads. Loads that shift between vertical and side loads are also better resisted by the same upper surfaces 24 to reduce shifting of wear member 12 on nose 14, and thereby reduce wearing of the components.

[56] Since vertical loading is typically greater than side loading, upper surfaces 24 are preferably more horizontal than vertical (Figs. 4-6 and 10-11), i.e., at an angle

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θ between 0 and 45 degrees relative to lower surface 22, and most preferably at an angle θ of about 40 degrees. Nevertheless, inclinations outside the preferred range are possible, particularly in light duty operations or in environments where high side loading can occur. Lower surface 22 is provided to resist upward vertical loading.

[57] A triangularly-shaped front end (along with other parts of the nose) also ensures that wear member 12 will be mounted properly on the nose, i.e., the wear member cannot be mounted the wrong way on the nose. Moreover, since the wear member is not subject to reversible mounting, the nose and socket can be formed with a slender profile for greater penetration, an outline that reduces the rate of wear on the wear member, and an efficient construction to specially suit loads and wear patterns expected in the desired digging operations.

[58] In an effort to stabilize the mounting of the wear member, it has been known to form the front end of the nose and socket as mating parallelepipeds with rectangular shaped stabilizing surfaces. While this construction provides increased stabilization for vertical loading, it can place higher levels of stress and wear at the front corners of the socket and nose. Hence, at times, holes can wear through the wear member to expose the nose at the corners, which results in the wear member needing to be replaced before the bit portion 28 has worn away. Since downward loading is typically greater than upward loading and with the flow of earthen material into the bucket, such wear through usually occurs along the top of the wear member. With an upward-pointing, triangularly-shaped front stabilizing end for nose 14, upper surfaces 24 are inclined downwardly, in a lateral direction, to essentially eliminate the upper front corners of the stabilization end (Figs. 10 and 11). This reduced profile at its lateral ends, in turn, reduces the wearing and stress on the upper lateral

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ends of the socket and nose compared to conventional teeth. As a result, the usable lives of the wear member and the nose are increased. In addition, the triangular front end 20 of nose 14 defines a smaller profile for better penetration into the ground.

[59] Nose 14 transitions rearwardly from a relatively small sized front end 20 with facets 22, 24 for high penetration and stability, into a larger sized rear end with increased facets for strength and support (Figs. 3-13). In the illustrated embodiment, the nose changes from a three-faceted front end into a six-faceted rear end. Nevertheless, other shapes and arrangements where the nose changes from a relatively small sized front end with a certain facets into a larger sized rear end with increased facets are possible.

[60] As seen in Figures 4-11 and 13, body 18 of nose 14 includes an upper side 30 and a lower side 32 that are each inclined to extend away from axis 26 in a rearward direction so that the body has a generally wedge-shaped configuration for strength. To reduce obstructions and enhance flow of earthen material into the bucket, upper side 30 has a more shallow inclination relative to axis 26 than lower side 32. Upper and lower sides 30, 32 also preferably each comprises a central facet 34, 38 and a pair of side facets 36, 40 to present a strong profile. The use of central facets 34, 38 reduces the overall depth of the assembly to provide a more slender projection for better penetration. The top central facet 34 is preferably flat in a transverse direction with a width that expands rearwardly to ease the flow of earthen material into the bucket. The lower central facet 38 is also generally flat in a transverse direction, but preferably has a narrowing width in a rearward direction so as to set within the digging shadow of bit 28 for less wear. This is particularly

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beneficial on account of the greater inclination of lower side 32 as compared to upper side 30.

[61] Lower side facets 40 are preferably substantially parallel to axis 26 to define rear stabilizing surfaces (Figs. 4, 6, 8-11 and 13). As with stabilizing surfaces 24, facets 40 are laterally inclined to resist both vertical and side loading. The inclination of side facets 40 should be chosen as a balance between stabilizing the wear member under vertical loading and providing the assembly with sufficient overall strength. Accordingly, side facets 40 are preferably inclined relative to central facet 38 at an angle Φ between 0 and 75 degrees or more, and most preferably at an angle of about 52 degrees. Nevertheless, stabilizing surfaces 40 could be inclined outside of the preferred range, particularly in light duty operations or those involving high side loading. The narrowing of central facet 38 also maximizes the rearward expansion of stabilizing surfaces 40 to provide greater surface area for resisting loads, particularly at the rear of nose 14.

[62] Base 15 further includes supports 42 adjacent nose 14 for additional stabilization of wear member 12 under upwardly directed loads (Figs. 1-2 and 4-11). In a preferred construction, supports 42 are substantially parallel to axis 26 and oriented generally in a horizontal orientation, though they could be laterally inclined to resist both vertical and side loads. One support 42 sets to each side of nose 14 just below the intersection of facets 36, 40, although they could be at or just above the intersection. This places upper stabilizing surfaces 42 adjacent lower stabilizing surfaces 40 so that they overlap near a mid portion of the nose. This offset, juxtaposed relationship of the lower and upper stabilizing surfaces 40, 42 on base 15 enables the use of a more slender tooth system than if side facets 36 were mirror

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images of facets 40. Since supports 42 provide stabilization against upward loads, side facets 36 are inclined in both axial and lateral directions, without defining stabilization surfaces substantially parallel to axis 26. With this construction, side facets 36 avoid extending farther upward and impeding the flow of earthen material into the bucket. Nevertheless, facets 36 could be formed as stabilizing surfaces with or without supports 42, or other arrangements of stabilizing surfaces could be used. Moreover, since supports 42 are preferably structured to resist only vertical loading, a single support on one side could be provided if desired.

[63] Wear member 12 includes a bit 28 with a front digging edge 44, and a mounting end 46 with a rearwardly-opening socket 16 (Figs. 1-3, 14 and 17-19). Socket 16 is preferably formed to matingly receive nose 14, although differences between the nose and socket could exist. Accordingly, socket 16 includes a generally triangular shaped stabilizing front end 48 having a lower stabilizing surface 52 and a pair of upper stabilizing surfaces 54. Stabilizing surfaces 52, 54 are substantially parallel to axis 26. As with nose 14, socket 16 transitions into a larger main portion 56 defined by an upper side 58 and a lower side 60. Upper side surface 58 includes a top facet 64 and side facets 66 to correspond to facets 34, 36 on nose 14. Likewise, lower side surface 60 includes a bottom facet 68 and side facets 70 to correspond to facets 38, 40 on nose 14. Side facets 70 are also substantially parallel to longitudinal axis 26 to bear against side facets 40 under certain loads.

[64] Mounting end 46 further includes shoulders 72 formed by an offset portion 74 of upper side 58 that overhangs past the rear end of lower side 60. Shoulders 72 are substantially parallel to axis 26 and oriented generally horizontal to bear against supports 42. Shoulders 72 are integral with upper side 58 rather than

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extending rearwardly as do known cantilevered ears. This arrangement, then, as compared to cantilevered ears, provides shoulders 72 with greater support and requires the use of less metal.

[65] While any portion of the nose may at times bear loads from the wear member, stabilizing surfaces 22, 24, 40, 42, 52, 54, 70, 72 are intended to be the primary surfaces for resisting vertical and side loads that are applied to the wear member. When loads having vertical components are applied along the digging edge 44 of wear member 12, the wear member is urged to roll forward off the nose. For example, when a downward load L1 is applied to the top of digging edge 44 (Fig. 1), wear member 12 is urged to roll forward on nose 14 such that front stabilizing surfaces 54 in socket 16 bear against stabilizing surfaces 24 at the front end of nose 14. The rear end 78 of lower side 60 of wear member 12 is also drawn upward against the lower side 30 of nose 14 such that rear stabilizing surfaces 70 in socket 16 bear against stabilizing surfaces 40 of nose 14.

[66] The engagement of stabilizing surfaces 40, 70 provides more stable support for the point as compared to conventional converging surfaces, with less reliance on the lock. For instance, if load L1 is applied to a tooth with a nose and socket defined by converging top and bottom walls without stabilizing surfaces 40, 70, the urge to roll the wear member off the nose is resisted in part by the abutting of converging walls at the rear ends of the nose and socket. Since these converging walls are axially inclined to the longitudinal axis, their abutment with each other tends to urge the point in a forward direction, which must be resisted by the lock. Accordingly, in such known constructions, a larger lock is needed to hold the point to the nose. A larger lock, in turn, requires larger openings in the nose and point, thus,

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reducing the overall strength of the assembly. In the present invention, stabilizing surfaces 40, 70 (in conjunction with stabilizing surfaces 24, 54) are substantially parallel to longitudinal axis 26 to essentially eliminate this forward urging of wear member 12. As a result, the wear member is stably supported on the nose to increase the strength and stability of the assembly, reduce wear, and enable the use of smaller locks.

[67] Stabilizing surfaces 22, 42, 52, 72 function in essentially the same manner for upwardly-directed vertical loads. An upwardly directed load L2 (Fig. 1) causes front stabilizing surface 52 of socket 16 to bear against stabilizing surface 22 on the front end of nose 14. The upward rolling of wear member 12 on nose 14 is also resisted by shoulders 72 bearing against supports 42 at the rear ends of wear member 12 and nose 14.

[68] As noted above, in the illustrated embodiment, stabilizing surfaces 24, 40, 54, 70 are inclined in transverse directions. Preferably, these angled stabilizing surfaces are symmetrical, although an asymmetrical arrangement is possible. The transverse inclination of stabilizing surfaces 24, 40, 54, 70 enables them to resist side loads, such as load L3 (Fig. 1). For example, the application of side load L3 causes wear member 12 to laterally cant on nose 14. The front stabilizing surface 54 on the side L3 is applied is pushed laterally inward to bear against front stabilizing surface 24 on nose 14. The rear portion 79 of facet 70 on the opposite sidewall of socket 16 is drawn inward to bear against the corresponding facet 40. The opposite stabilizing surfaces 24, 54, 40, 70 work in the same way for oppositely directed side loads.

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[69] It is advantageous for the same surfaces to resist both vertical and side loading. Loads are commonly applied in shifting directions as the bucket or other excavator is forced through the ground. With the laterally inclined surfaces, the bearing engagement continues between the same surfaces even if a load shifts, for example, from more of a vertical load to more of a side load. With this arrangement, movement of the point and wearing of the components can be reduced.

[70] Stabilizing surfaces 22, 24, 40, 42, 52, 54, 70, 72 are preferably planar, but could have different shapes. For example, the stabilizing surfaces could be formed with broad convex or concave curves. In addition, rear stabilizing surfaces 40, 70 are generally most effective when located at or near the rear end of the nose and socket. Hence, in the illustrated embodiment, the front portions of stabilizing surfaces 40, 70 taper to a front point. Of course, the front portions could have other narrowing shapes, non-converging shapes, or be eliminated entirely. Further, bearing may occur on only one portion of any or all of the stabilizing surfaces to provide a beneficial effect.

[71] In one construction, lock 17 fits into a through-hole 81 defined in wear member 12 and a pocket or cavity 83 defined in one side of nose 14 (Figs. 1-2 and 24-27). Lock 17 is movable between a hold position where the lock 17 holds wear member 12 to nose 14, and a release position where wear member 12 can be installed on or removed from nose 14.

[72] Through-hole 81 preferably extends through a side facet 66, but could be formed in other parts of the wear member (Figs. 14-17). Through-hole 81 has a generally rectangular shape with two end walls 85, 87 and two sidewalls 89, 91, but could have other shapes. One end wall 85 defines a pivot support 93 in the form of

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a rounded bulb (Figs. 24-27). The bulb 93 is preferably turned inward, toward nose 14, to alleviate the risk of losing the bulb due to wearing. The opposite end wall 87 defines a stop 95 extending inward toward end wall 85.

[73] Lock 17 (Figs. 20-23) preferably is generally triangular or pie-shaped with a narrow end 103, a wide end 105, a front face 107, and a rear face 109, though other shapes are possible. Narrow end 103 is formed with a pivot support 113, which is preferably an arcuate recess to cooperate with bulb 93 on end wall 85, to enable the lock to pivotally swing between hold and release positions. Pivot supports 93, 113 could be reversed so that the bulb is formed on lock 17 and the recess on wear member 12. Wide end 105 includes a latch 115 that cooperates with stop 95 to retain lock 17 in the hold position; i.e., latch surface 117 opposes stop surface 119 to prevent removal of lock 17 from through-hole 81. Of course, other latch and stop configurations could be used. In addition, although pivot support 93 could be formed on end wall 87 and stop 95 on end wall 85, they are preferably as illustrated to minimize obstructions with adjacent wear assemblies.

[74] In use, lock 17 is fit into through-hole 81 such that pivot support 93 bears against pivot support or bulb 113 for pivotal movement of the lock between the hold position and the release position (Figs. 24-27). In the hold position, the outer face 123 of lock body 101 is generally aligned with the outer surface 125 of wear member 12. In this way, the lock is partially protected from wearing and forms no obstruction to the flow of earthen material into the bucket. Lock 17 has a depth that is greater than the thickness of wall 127 of side 58 of wear member 12 so that the lock fits into the pocket or cavity 83 in nose 14.

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[75] Pocket 83 is preferably defined by base walls 129, 131 collectively having a generally L-shaped configuration, a front wall 133, and a rear wall 135 (Figs. 4, 5 and 7-10). Since pocket 83 does not extend through nose 14, it consumes only a small portion of the nose to retain the strength of the nose. Base wall 129 provides a platform against which lock 17 can set to prevent an excessive insertion into through-hole 81. Base wall 131 is preferably curved to follow the arcuate path of lock 17 when swung into the hold position. In the hold position, front face 107 of lock 17 opposes front wall 133, and rear face 109 of lock 17 opposes sidewall 91 of through-hole 81 to prevent removal of wear member 12 from nose 14. In a preferred embodiment, particularly to resist heavy loads, sidewall 91 of through-hole 81 is enlarged with an inwardly extending lobe 137. In this way, the surface area of sidewall 91 can be increased for greater holding power. To accommodate lobe 137 during installation of wear member 12, nose 14 is formed with an axial depression 139 in the side facet 36 with pocket 83.

[76] In one construction, front and rear faces 107, 109 of lock 17 are generally parallel to the opposed front and rear walls 133, 135 of pocket 83. In this way, a firm engagement can be had between the lock and the pocket. Nevertheless, in an alternative construction, faces 107 and 109 of lock 17 converge toward inner side 149 to engage similarly converging walls 133, 135 of pocket 83. In this way, the lock can be easily inserted and removed from pocket 83 as the walls do not engage until fully positioned.

[77] Lock 17 further preferably includes a body 140, a biasing member 141, and a cap 143 (Figs. 20-23). Biasing member 141 urges latch 115 under stop 95 when lock 17 is in the hold position. Alternatively, stop 95 could be formed with a

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biasing member. Biasing member 141 is preferably an elastomer which is bonded, by vulcanization or adhesive, to the narrow end surface 145 of body 140. Elastomer 141 could be secured in other ways such as with a plug that fits into a hole forward in the body 140. Body 140 and cap 143 are composed of steel or another hard material. End surface 145 is preferably curved to generally match the curve of pivot support 93 so as to support elastomer 141. Cap 143 is, in turn, bonded to the narrow end surface 147 of elastomer 141 for easier turning of the lock and to protect elastomer 141 from wear.

[78] In the release position, lock 17 is swung out of pocket 83 to permit installation or removal of wear member 12 (Figs. 26-27). In the preferred construction, lock 17 can continue to be secured to wear member 12 and retained in the release position, i.e., with inner side 149 of lock 17 generally aligned with sidewall 91 of through-hole 81. Nevertheless, lock 17 could be completely removed from wear member 12 if desired for installation and/or removal. Wide end 105 of lock 17 is preferably formed with a recess 151 that is biased by elastomer 141 to catch on end wall 87 of through-hole 81 when lock 17 is in the release position (Figs. 20 and 22).

[79] In use, lock 17 is preferably assembled into through-hole 81 (i.e., without base 15), in its hold position, prior to being shipped to a customer. In this construction, latch 115 fits under stop 95 to prevent lock 17 from coming out of through-hole 81. Lock 17 further includes a finger or other stop member 153 that extends outward from wide end 105 to extend outside of through-hole 81 and engage against end wall 87 to prevent the lock from falling into socket 16. As a result, wear member 12 can be shipped to and stored by a dealer or end user.

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without fear of losing the lock. Also, since fewer parts are required to be shipped and stored, shipping costs and inventory concerns are reduced.

[80] To install a wear member 12 onto a nose, lock 17 must first be moved from its hold position (i.e., its storage position) to its release position (Figs. 26-27). A pry space 155 (Fig. 22) is formed along wide end 105 of lock 17 to enable a user to insert a pry tool T between lock body 140 and end wall 87. Tool T can be rotated to gain leverage against end wall 87 and press against pry surface 157 on lock 17 (Fig. 26). In this way, tool T can easily shift lock 17 toward pivot support 93, against the bias of elastomer 141, to release latch 115 from stop 95. Further rotation of tool T (Fig. 27), then, swings lock 17 about pivot support 93 until recess 151 engages end wall 87 to retain lock 17 in its release position. The tool is removed and wear member 12 placed on nose 14 such that the nose is within socket 16. In this mounted position, through-hole 81 is generally aligned with pocket 83.

[81] To install the lock, tool T is fit into a tool slot 159 (Fig. 24) and rotated to turn lock 17 about pivot support 93 in the opposite direction to swing the lock into through-hole 81 and pocket 83 (Fig. 25). With use of tool T, the user can press lock body 140 toward pivot support 93, against elastomer 141, to enable latch 115 to pass stop 95. The rotation is continued until finger 153 engages end wall 87 or inner side 149 abuts base wall 129. The opposition of latch surface 117 and stop surface 119 prevent ejection or loss of lock 17 from assembly 10. While finger 153 may wear away with use, base surface 129 will prevent lock from falling through through-hole 81. Moreover, the finger will no longer be needed to hold the lock to the wear member without a base.

107.
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[82] In the hold position (Figs. 1-2 and 25-26), front face 107 of lock 17 opposes front wall 133 of pocket 83, and rear face 109 of lock 17 opposes sidewall 91 of through-hole 81 to prevent removal of wear member 12 from nose 14. Lock 17 resists release of wear member 12 by the solid metal body 140, without loading elastomer 141. Moreover, pivot supports 93, 113 define a hinge 161 with a pivot axis 163 that is generally longitudinal, albeit at the same inclination as wall 127 (Figs. 14, 17 and 19). Nonetheless, the general longitudinal orientation generally shields the hinge from being exposed to substantial loading. Once the wear member is worn out, the lock is again removed with tool T in the same way as described above (Figs. 26-27).

[83] In an alternative assembly 10a (Figs. 28-40), wear member 12a is secured to base 15a by lock 17a. Assembly 10a is similar to assembly 10; only the lock and openings for the lock differ. Lock 17a (Figs. 35-40) has a generally triangular or pie shape with a narrow end 103a, a wide end 105a, a front face 107a, and a rear face 109a. As with lock 17, lock 17a is fit into a through-hole 81a and pocket 83a in the hold position (Figs. 28-29). Through-hole 81a is rectangular and includes end walls 85a, 87a and sidewalls 89a, 91a (Fig. 34). In this construction, pivot support 93a is formed on end wall 87a with stop 95a on end wall 85a; nevertheless, the end walls could be reversed if desired. Pocket 83a, similar to pocket 83, is defined by base walls 129a, 131a, front wall 133a and rear wall 135a (Fig. 32).

[84] Wide end 105a of lock 17a includes a channel 165a into which latch 115a is received (Figs. 35-40). Latch 115a includes a pivot pin 167a that fits within a pivot groove 169a formed at one end of channel 165a; however, the pin and

108.
109

groove could be reversed if desired. Latch 115a includes a latch surface 117a that opposes stop surface 119a to hold lock 17a in through-hole 81a. A biasing member 141a urges latch 115a outward against end wall 85a to engage latch 115a and stop 95a. The biasing member is preferably an elastomer, though other spring means could be used. Elastomer 141a is preferably bonded by vulcanization or adhesive to latch 115a, and possibly also to the bottom surface 171a of channel 165a. The elastomer may alternatively include a projection that is received into a hole to secure the bonded elastomer and latch member to lock body 140a.

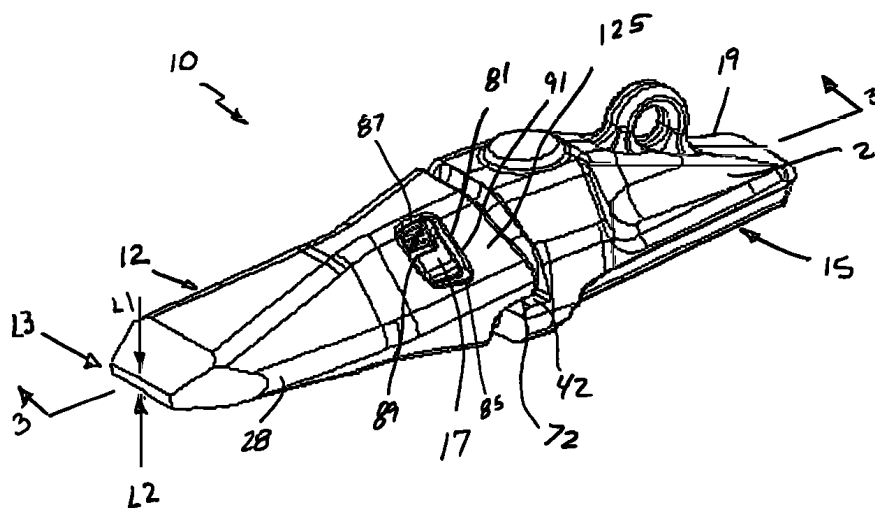
[85] In use, lock 17a pivotally swings about end wall 87a between its hold and release positions (Figs. 28-31). As with lock 17, lock 17a sets within pocket 83a in the hold position to hold wear member 12 to nose 14 (Figs. 28-29). To remove lock 17a, a pry tool is inserted into a pry space 173a between latch 115a and end wall 87a. The tool can then be rotated to gain leverage against end wall 87a and to press latch 115a toward pivot support 93a against the bias of elastomer 141a until in latch 115a releases stop 95a. The tool can, then, continue to rotate to swing lock 17a about end wall 87a (Figs. 30-31). Lock 17, lock 17a may be completely removed when in its release position or, alternatively, restrained in a release position (like lock 17) by expansion of latch 115a or other means.

[86] Other locks can also be used to secure wear member 12 to nose 14. For example, standard through-holes can extend vertically or horizontally through the nose and wear member for receiving a conventional sandwich pin. Also, as another example, a side slot along the nose and a rearwardly extending ear and lug arrangement on the wear member could be used to collectively define a passage for receiving a side pin. In addition, the various stabilizing surfaces described above

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could be rearranged to fit the needs of a particular digging machine. As an example only, stabilizing surfaces 24, 40 could be reversed so that surfaces 24 have a V-shape and surfaces 40 have an inverted V-shape.

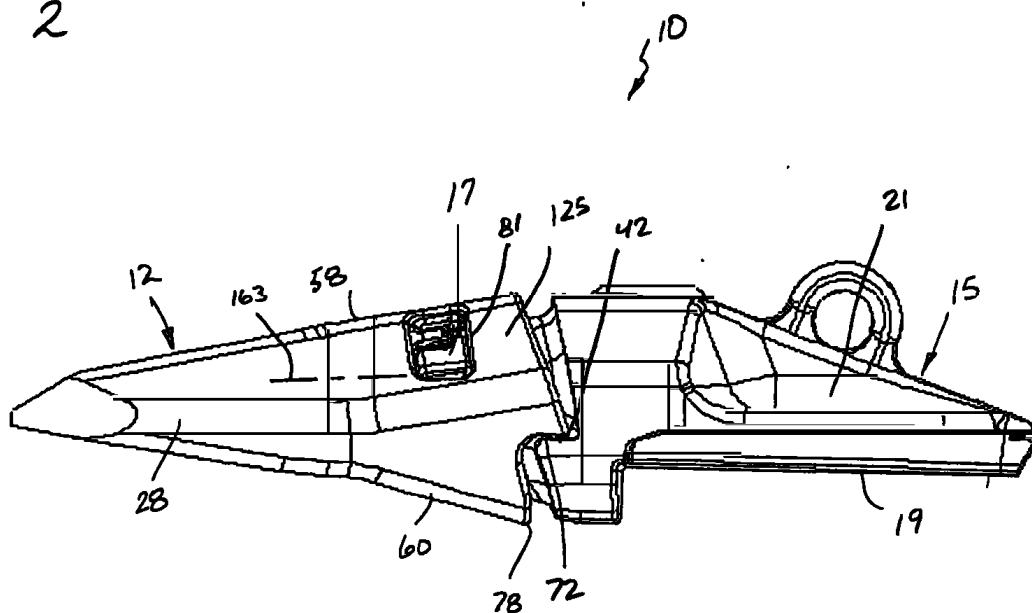
FIG. 1



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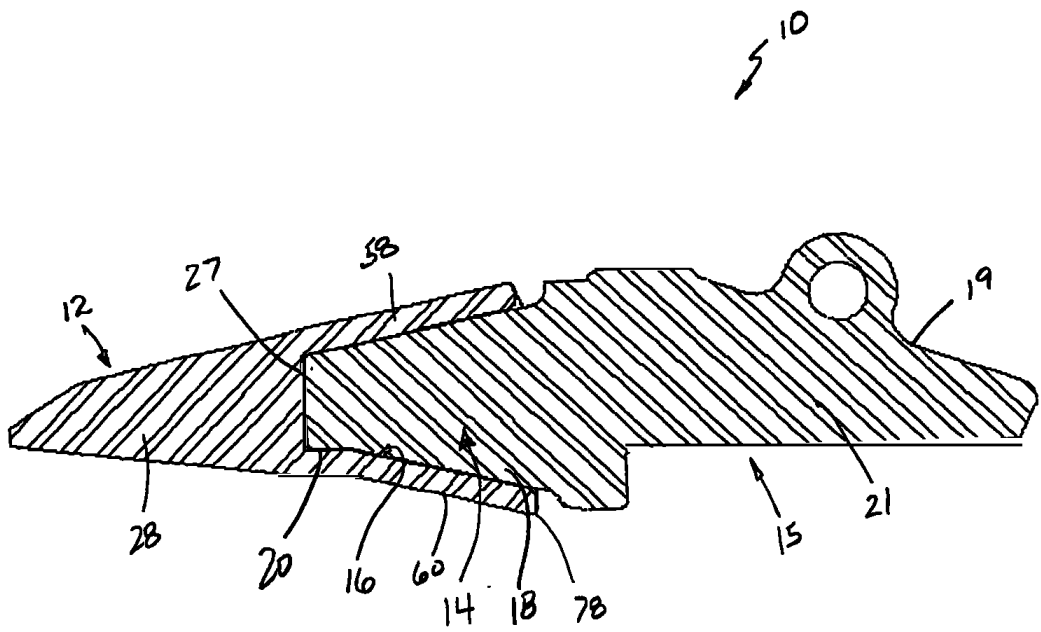
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FIG. 2



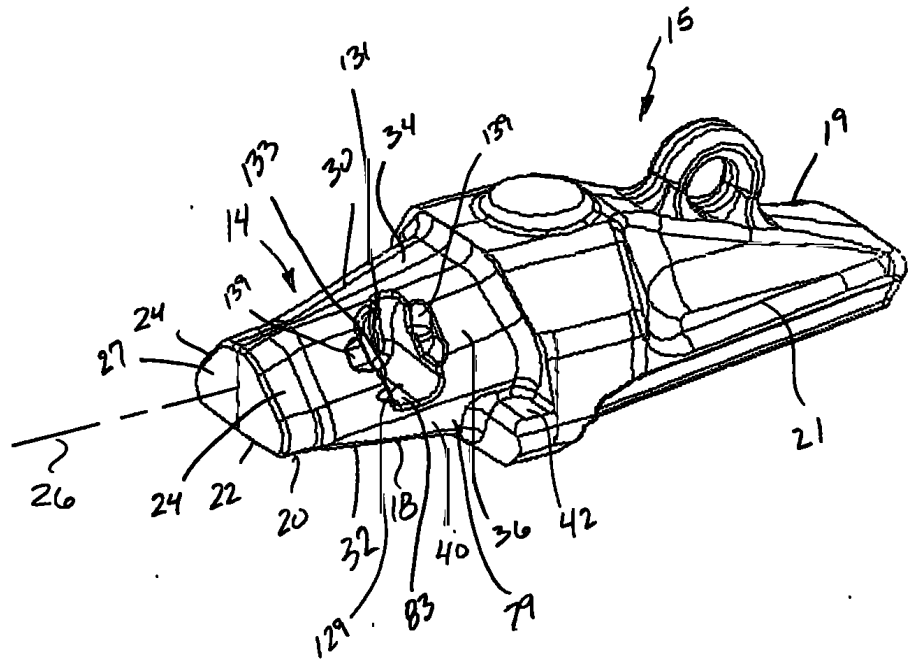
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FIG. 3



~~7~~

FIG. 4



12

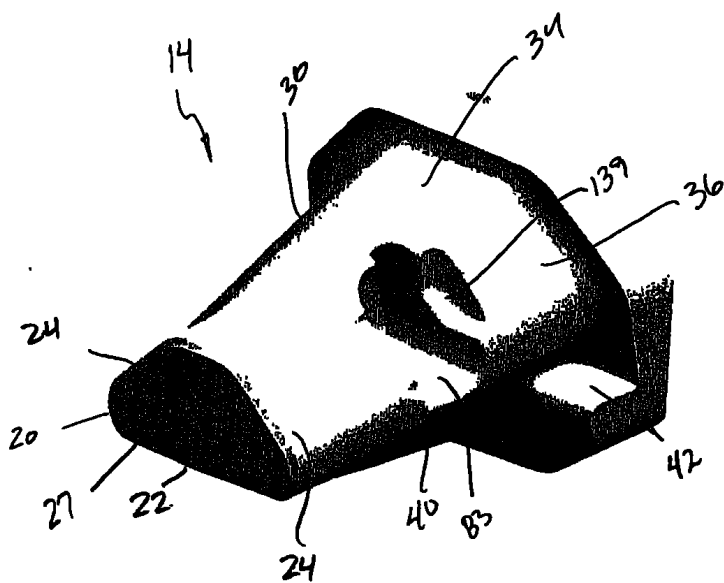


FIG. 5

Fig. 5

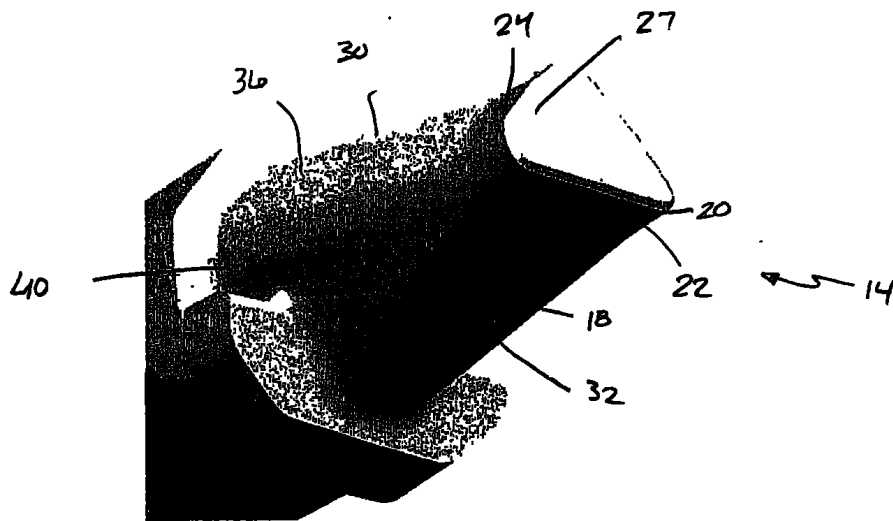
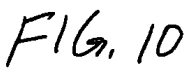


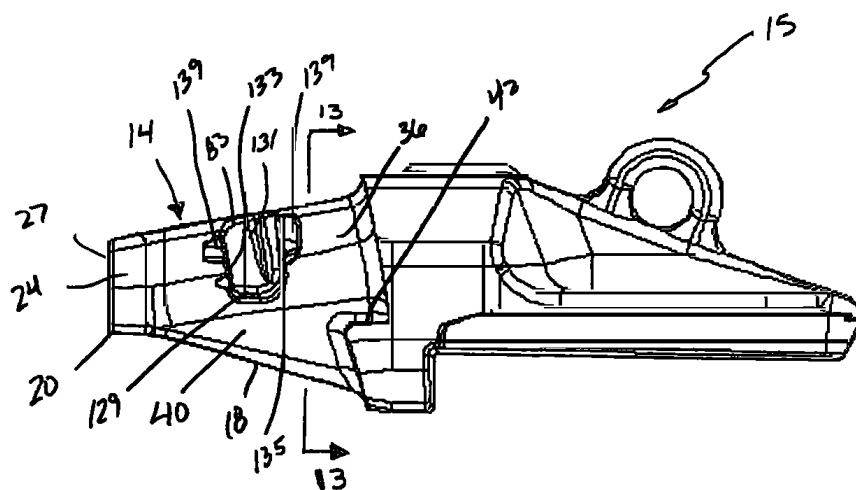
FIG. 6

~~115~~



[Handwritten signature]

FIG. 8



76

118

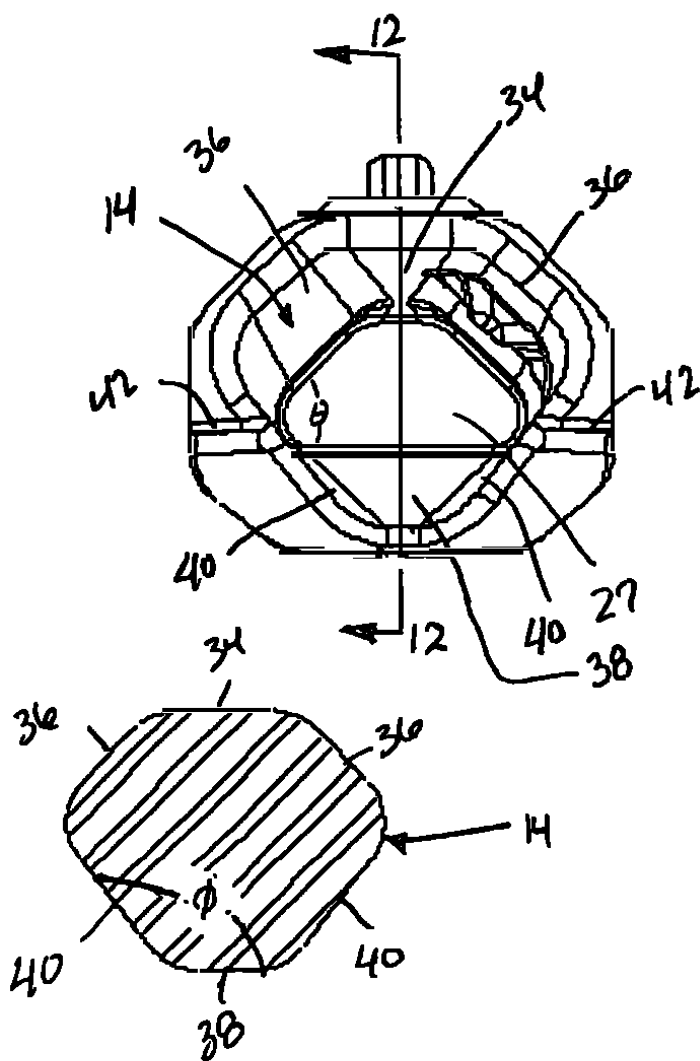


FIG. 11

FIG. 13

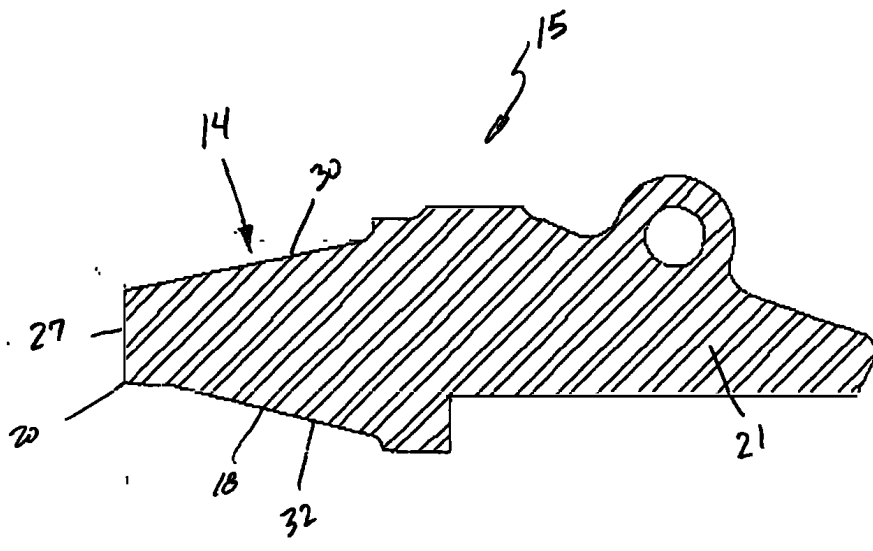


FIG. 12

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120:
~~119~~

FIG. 14

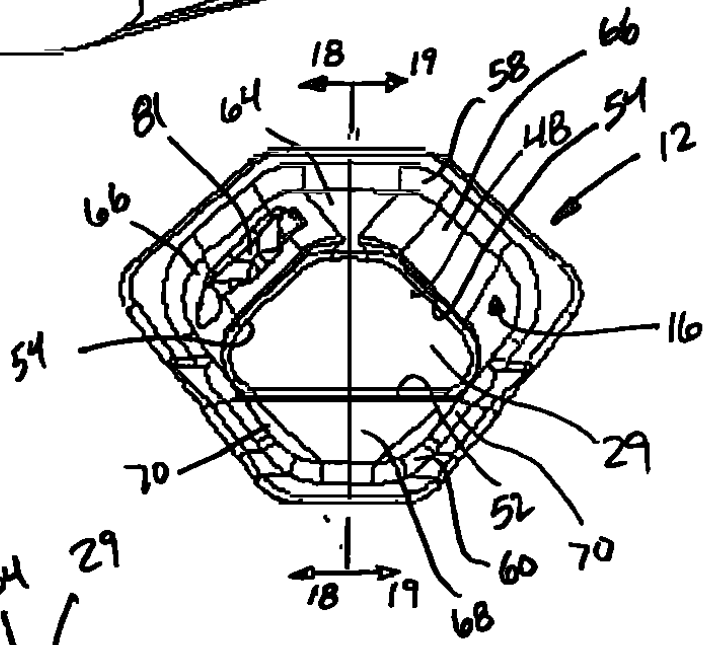
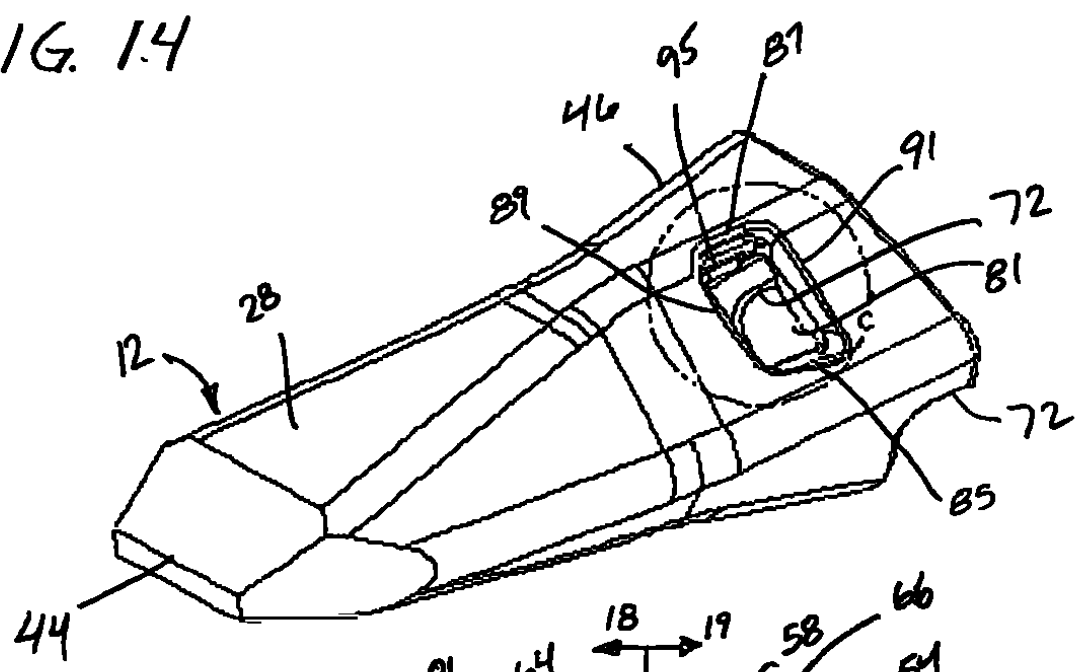


FIG. 16

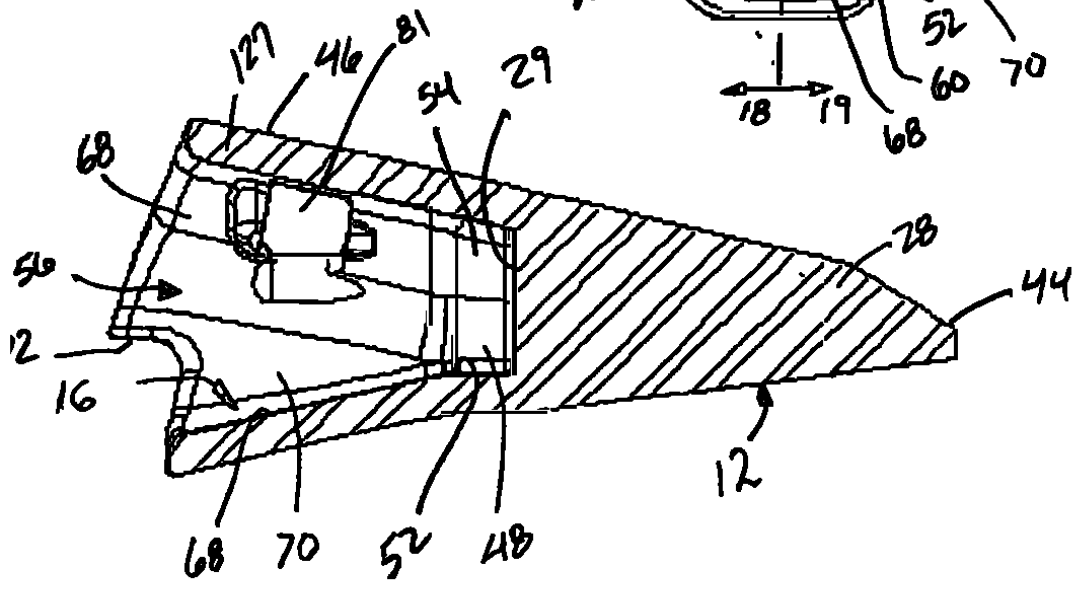


FIG. 18

121
120

FIG. 15

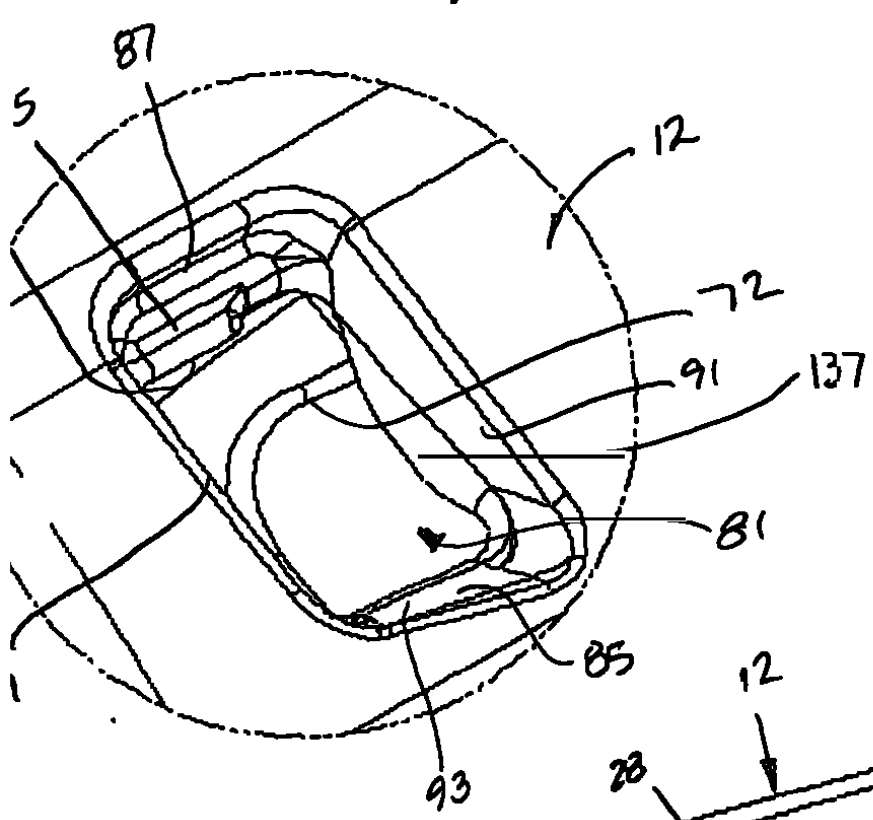


FIG. 17

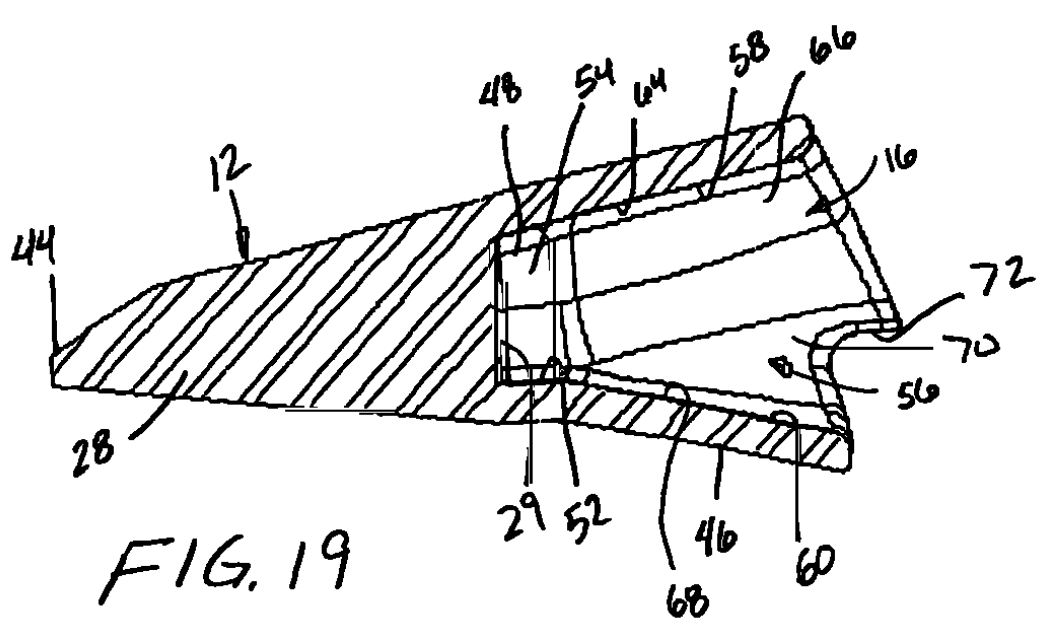
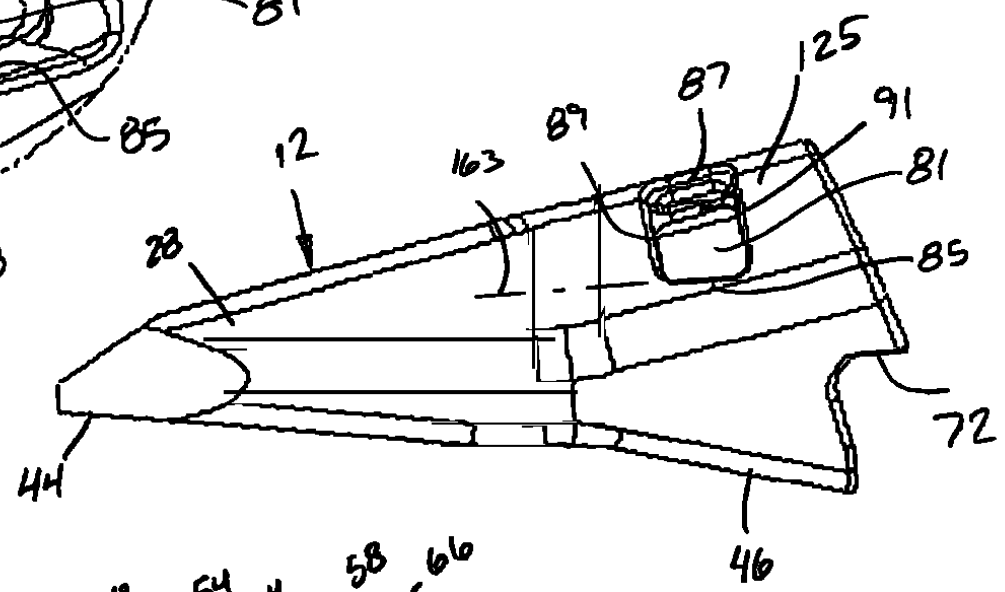


FIG. 19

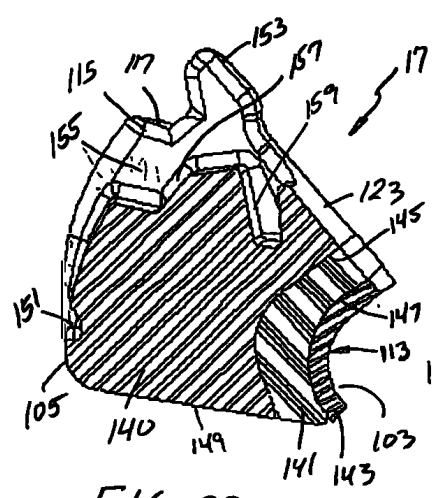


FIG. 22

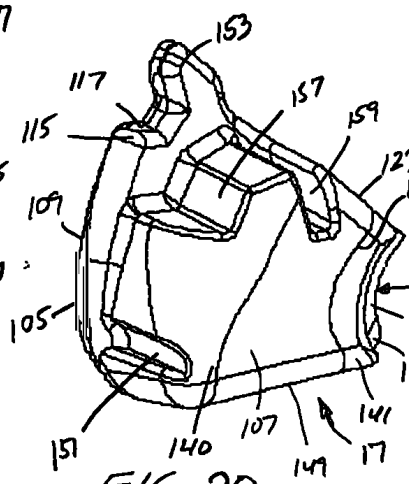


FIG. 20

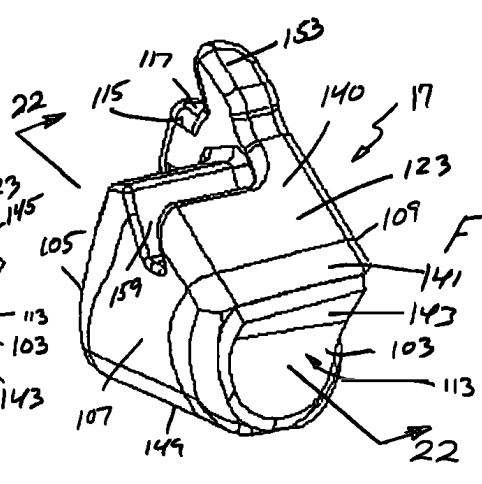


FIG. 21

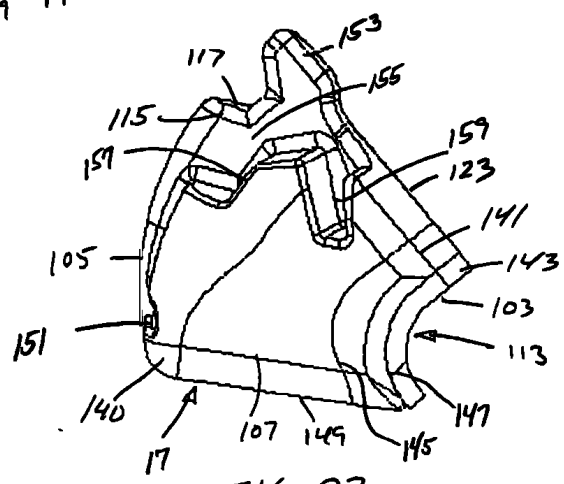


FIG. 23

122

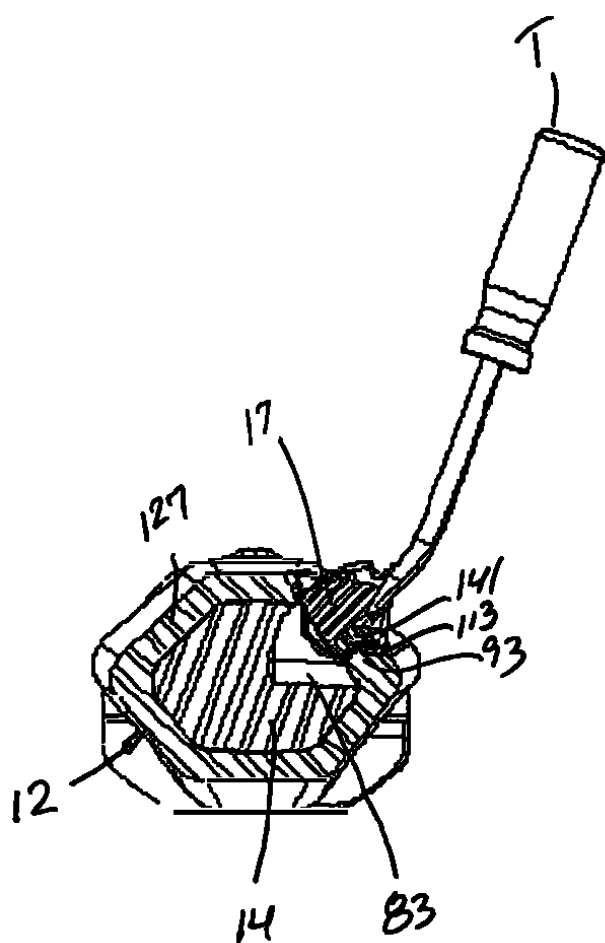


FIG. 24

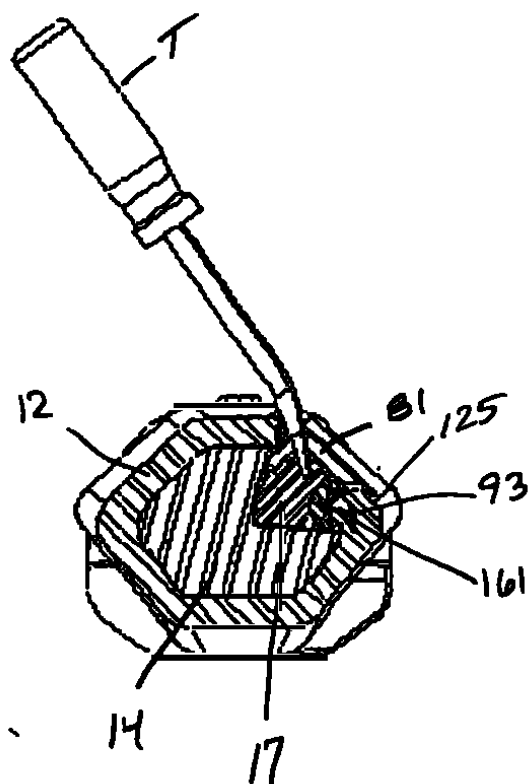


FIG. 25

124¹.
x23

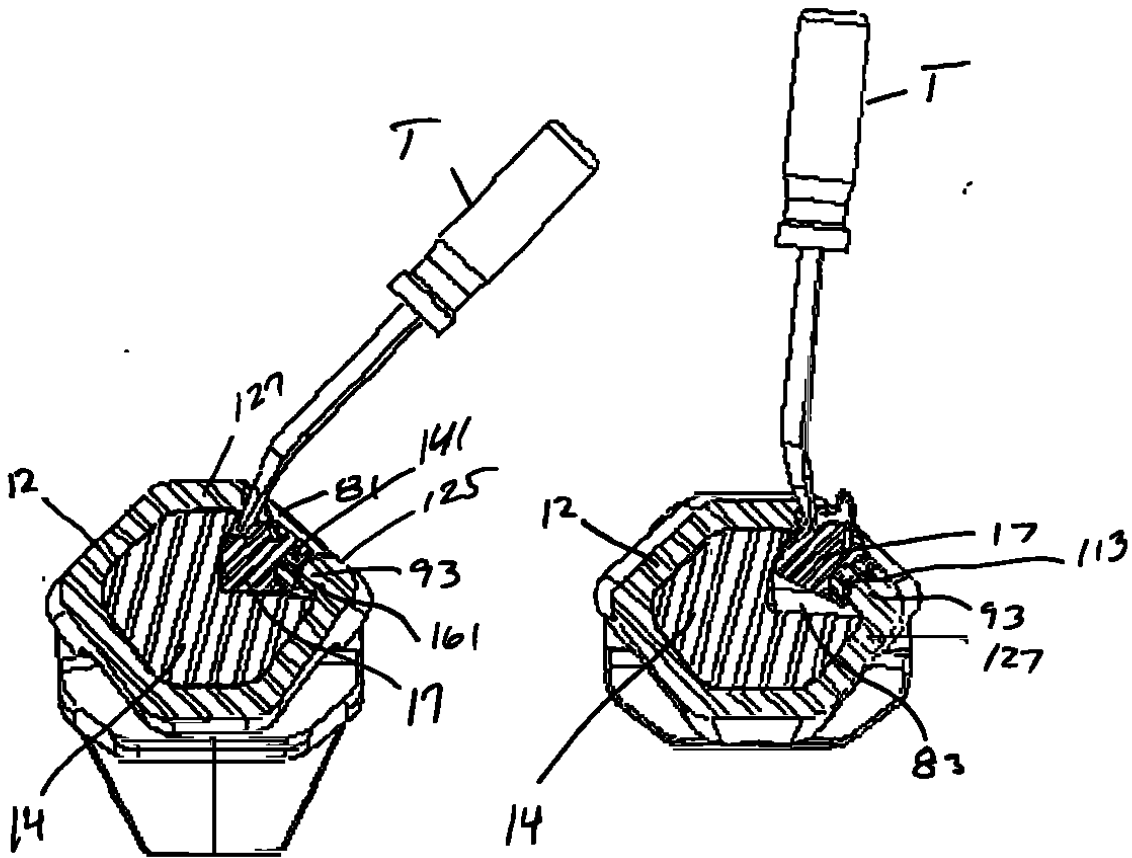


FIG. 26

FIG. 27

1251
724

FIG. 28

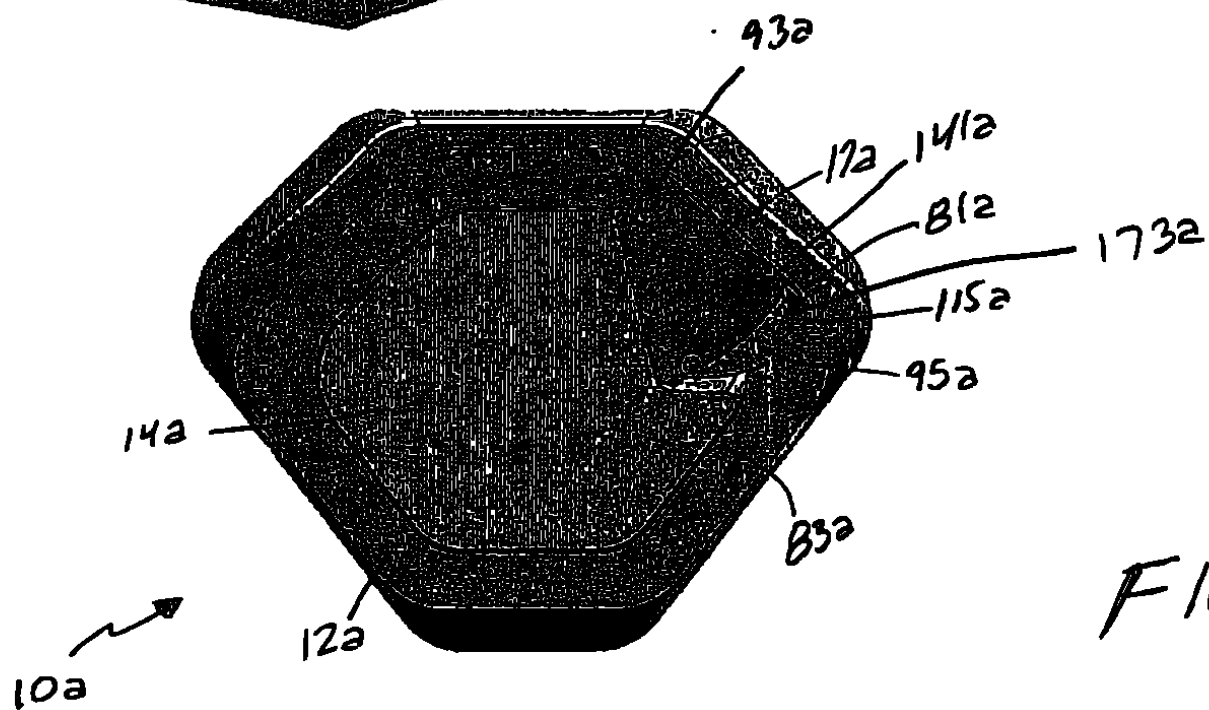
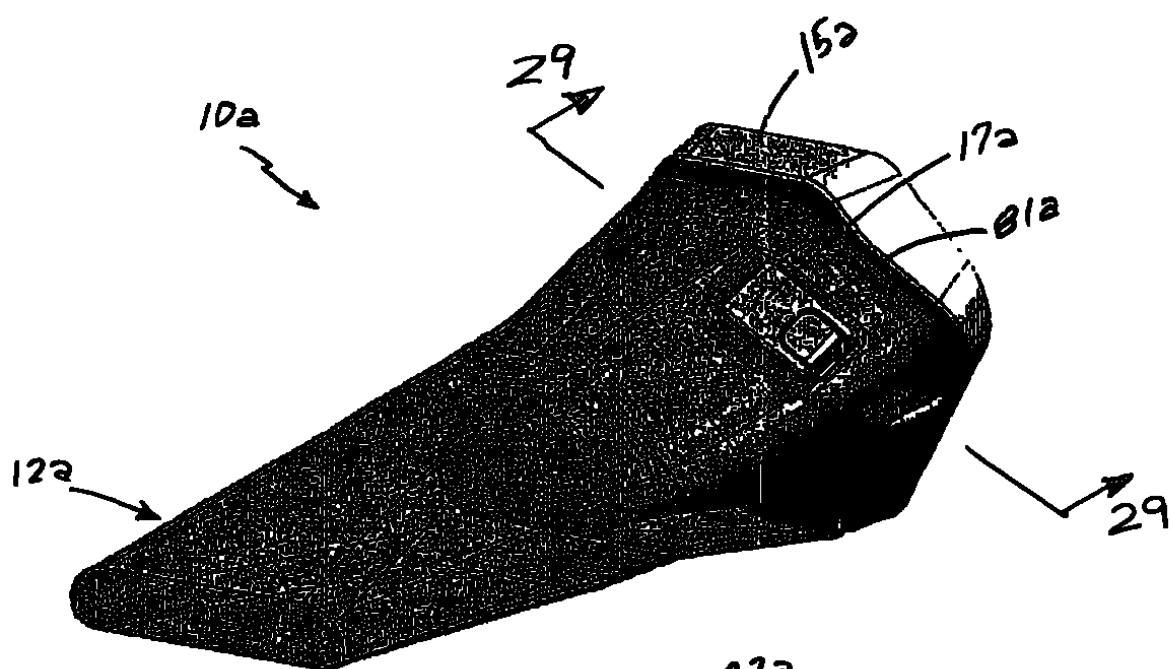


FIG. 29

126
128

FIG. 30

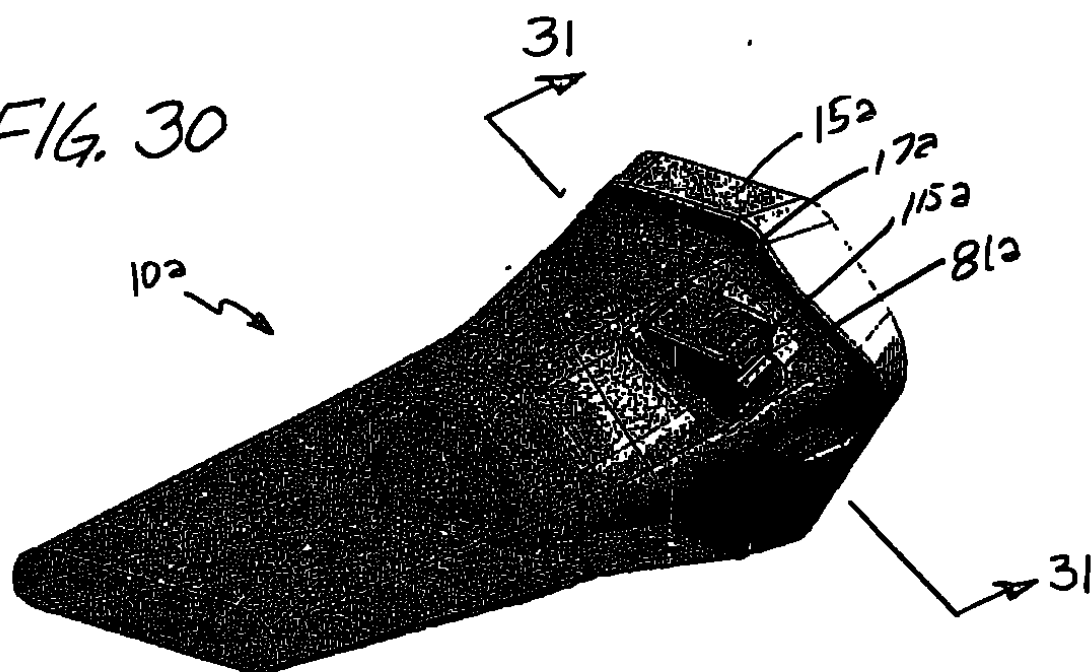
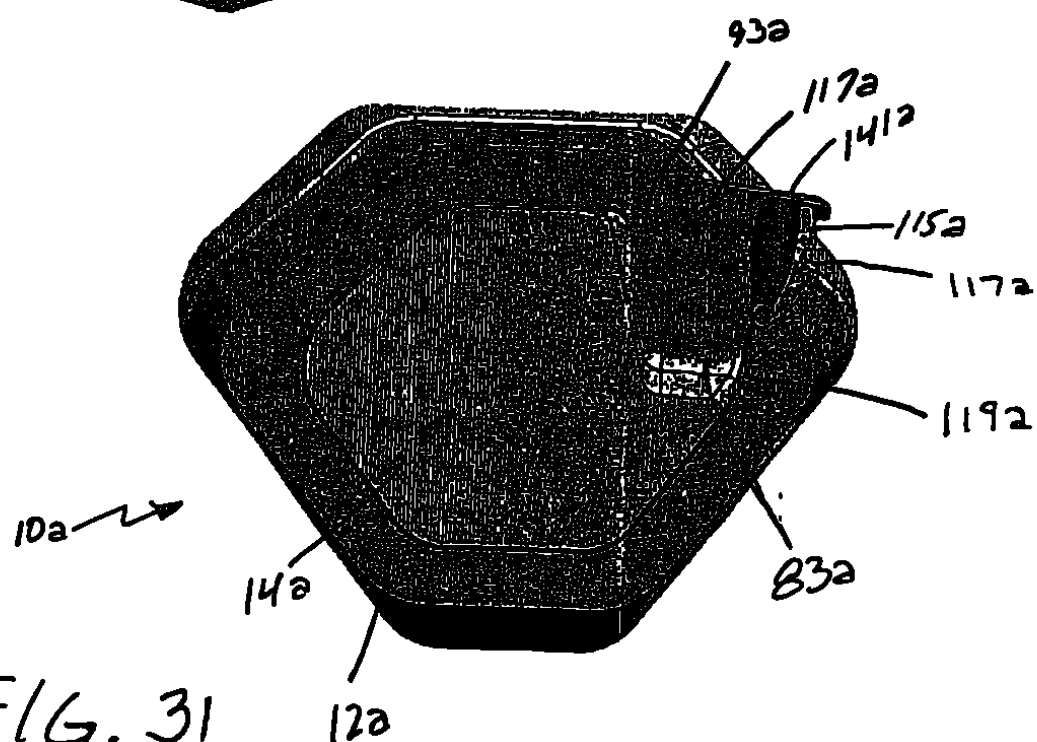


FIG. 31



127
~~126~~

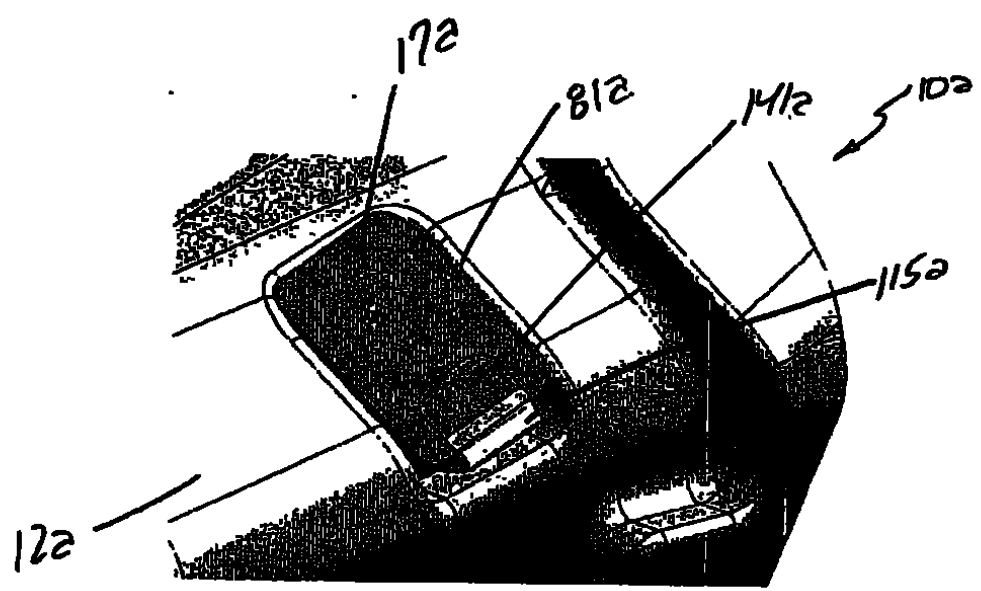


FIG. 33

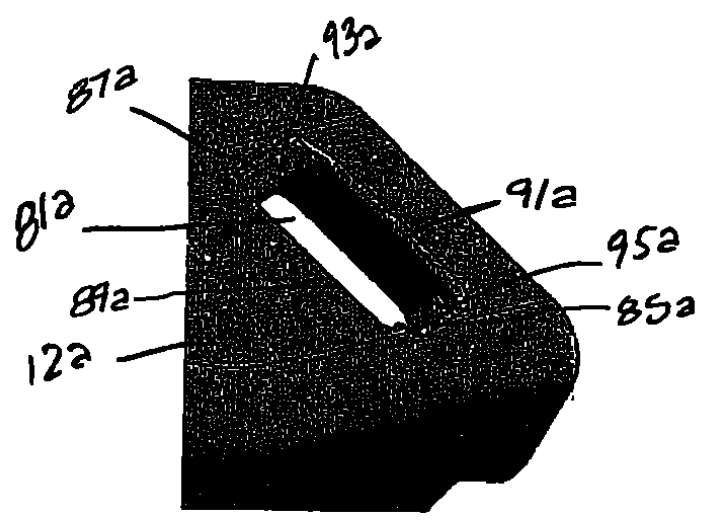


FIG. 34

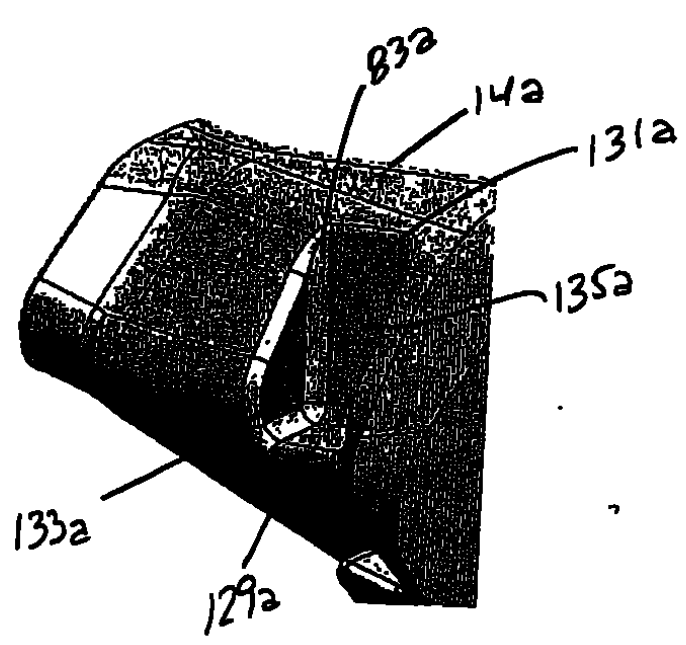


FIG. 32

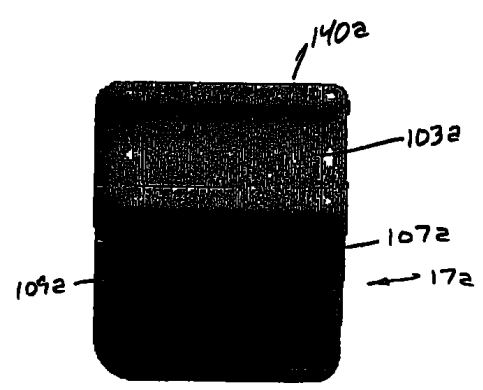
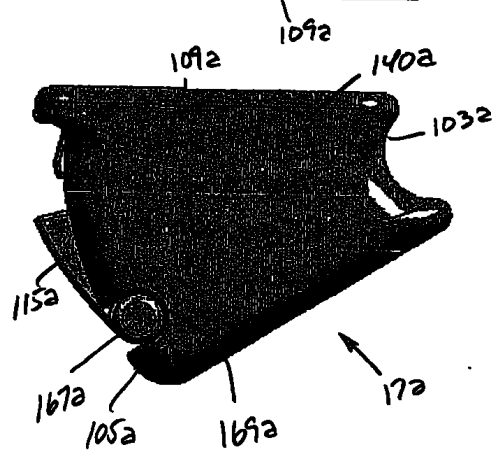
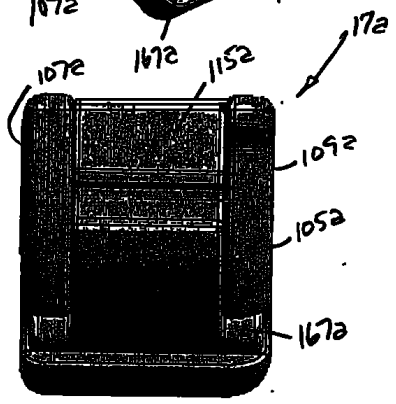
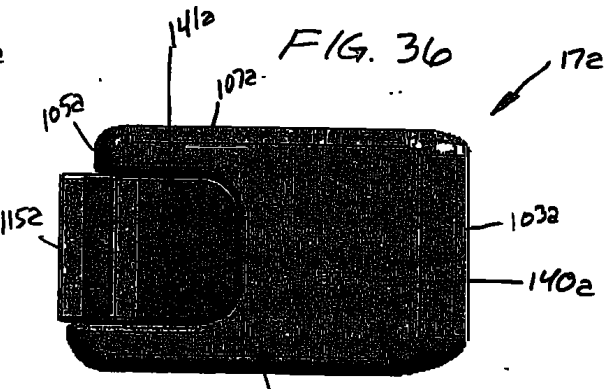
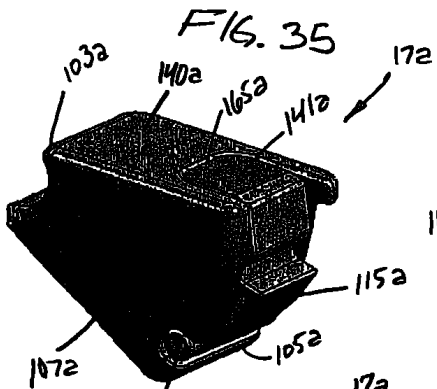


FIG. 35

FIG. 36

FIG. 37

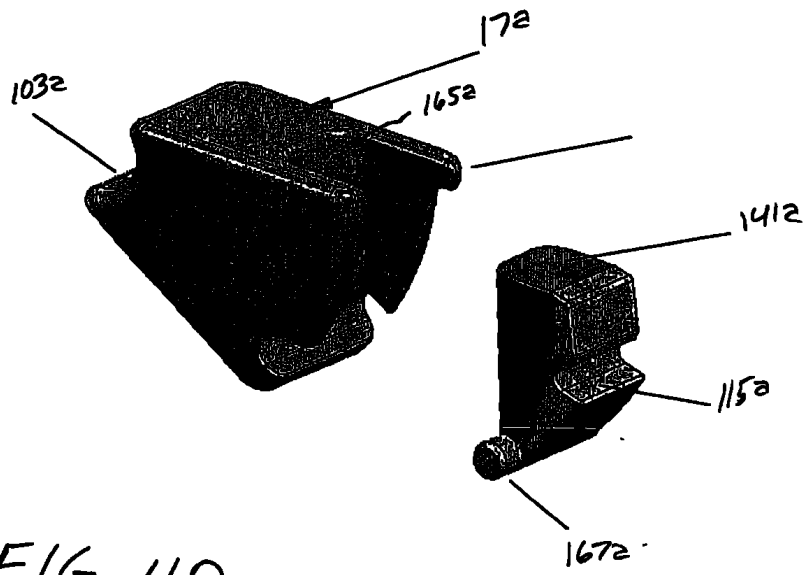


FIG. 40

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Application Data Sheet

Application Information

Application number::
Filing Date::
Application Type:: Provisional
Subject Matter:: Utility
Suggested classification::
Suggested Group Art Unit::
CD-ROM or CD-R?:: None
Number of CD disks::
Number of copies of CDs::
Sequence submission?::
Computer Readable Form (CRF)?::
Number of copies of CRF::
Title:: WEAR ASSEMBLY
Attorney Docket Number:: 348-PROV
Request for Early Publication?:: NO
Request for Non-Publication?:: NO
Suggested Drawing Figure::
Total Drawing Sheets:: 20
Small Entity?:: NO
Latin name::
Variety denomination name::
Petition included?:: NO
Petition Type::
Licensed US Govt. Agency::
Contract or Grant Numbers::
Secrecy Order in Parent Appl.?:: NO

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137

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Name Suffix::
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Country of Residence:: USA
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City of mailing address:: Lake Oswego
State or Province of mailing address:: Oregon
Country of mailing address:: USA
Postal or Zip Code of mailing address:: 97035

133
132

C rrespondence Information

Correspondence Customer Number:: 54327

Representative Information

Representative Customer Number:: 54327

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::

Foreign Priority Information

Country::	Application number::	Filing Date::	Priority Claimed::

Assignee Information

Assignee name:: ESCO Corporation
Street of mailing address:: 2141 NW 25th Avenue
City of mailing address:: Portland
State or Province of mailing address:: Oregon
Country of mailing address:: USA
Postal or Zip Code of mailing address:: 97210

APOSTILLE

(Convention de La Haye du 5 octobre 1961)

- 1 Country *United States of America*
- 2 This public document
has been signed by JAMES P RICHARDS
- 3. acting in the capacity of Notary Public
- 4. bears the seal/stamp of the said notary

5. Salem, Oregon Certified

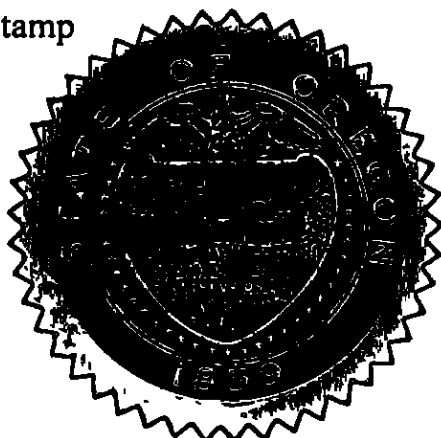
6. on Wednesday, April 4, 2007

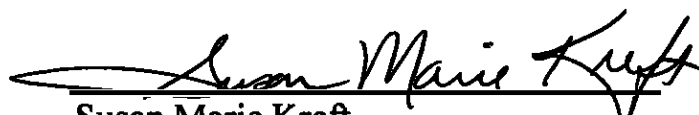
7. by: *Assistant to Secretary of State*

8. No. HC2007-2831

10. Signature

9. Seal/Stamp





Susan Marie Kreft
Assistant to Secretary of State

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134
c9

CESION

Yo, (nosotros) abajo firmado (s)

domiciado(s)

en

declaro(amos) bajo juramento ser único(s) y verdadero(s)
inventor(es)

de la

invención:

declaro(amos) así mismo que cedo(amos) y transfiero(enmos),
sin

limitación, a favor de la

sociedad

constituida y existente de conformidad con las leyes de

domiciliada en

todos los derechos inherentes a dicha invención y que la
citada Compañía queda facultada para solicitar en su nombre
la patente de invención correspondiente en la República de
Colombia.

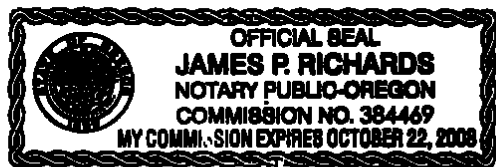
Dated this 26th day of March, 2007

Severn D. Durand

Severn D. Durand
5736 North Maryland Avenue
Portland, Oregon 97217

STATE OF OREGON)
COUNTY OF MULTNOMAH)

On this 26th day of March, 2007, before me a Notary Public in and for the County and State aforesaid, personally appeared
Severn D. Durand, to me known to be the person of that name, who signed and sealed the foregoing instrument, and
acknowledged the same to be his free act and deed.



ASSIGNMENT

I, the undersigned
Severn D. Durand

a US citizens

state under oath to be sole and true inventors of the invention:

WEAR ASSEMBLY

state as well, that assign, without reservations or limitations in
favour
of ESCO Corporation

a corporation constituted and existing in conformity with the laws
of the State of Oregon

domiciled at 2141 NW 25th Avenue
Portland, Oregon 97210-2578

all rights inherent to said invention and that the above mentioned
company hereby is enabled to apply, in its name, for the
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Notary Public - State of Oregon
My Commission expires: 10-22-08

TRADUCCIÓN OFICIAL No. 05.10/07d realizada por Diego Vargas, Traductor
Oficial, Resolución No. 0001 de 1999 del Ministerio de Justicia y
registrado ante el Ministerio de Relaciones Exteriores de Colombia.

A continuación se traducen los sellos y legalizaciones de un
documento mediante el cual Severn D. Durand, ciudadano de los Estados
Unidos, declara bajo juramento ser único y verdadero inventor de la
invención "Montaje de Desgaste" y declara así mismo que cede y
transfiere sin limitación a favor de **ESCO Corporation**, una sociedad
constituida de conformidad con las leyes del Estado de Oregon,
domiciliada en 2141 NW 25th Avenue, Portland, Oregon 97210-2578,
todos sus derechos y que la citada compañía queda facultada para
solicitar a su nombre la patente de invención correspondiente en la
República de Colombia.

Dado y firmado el 26 de marzo de 2007.

Firma Ilegible

Severn D. Durand
5736 North Maryland Avenue
Portland, Oregon 97217

Firma Ilegible

ESTADO DE OREGON)
CONDADO DE MULTNOMAH)

Hoy 26 de marzo de 2007, ante mí un Notario Público en y para el
anterior Condado y Estado, comparecieron personalmente Svern D.
Durand de quien doy fe es la persona con dicho nombre, quien
suscribió y firmó el anterior instrumento y reconoció que el mismo es
un acto y escrito de su libre albedrío.

SELLO OFICIAL
JAMES P. RICHARDS
NOTARIO PÚBLICO - OREGON
COMISIÓN NO. 384469
MÍ COMISIÓN VENCE OCTUBRE 22 DE 2008

Firma Ilegible
Notario Público - Estado de Oregon
Mí Comisión vence: 10-22-08

APOSTILLA

(Convention de La Haye du 5 octobre 1961)

1. País: Estados Unidos de América
Este documento público
2. ha sido firmado por JAMES P RICHARDS
3. actuando en calidad de Notario Público
4. lleva el sello/estampilla de el susodicho Notario

CERTIFICADO

5. Salem, Oregon
6. el Miércoles 4 de abril de 2007
7. por el Asistente del Secretario de Estado

8. No. HC2007-2831

10. Firma:

9. Sello/estampilla

ESTADO DE OREGON

Firma Ilegible

Susan Marie Kreft

Asistente del Secretario de Estado

1859

Es traducción fiel y completa de la cual se deja
oficina para su confrontación.

DVZ/ID-8798/WPCL002G/COLO 01195-801-004-0

Diego F. Vargas
DIEGO F. VARGAS

TRADUCTOR E INTERPRETE OFICIAL
ESPAÑOL - INGLES - INGLES - ESPAÑOL
RES. 0001 DE ENERO 4 DE 1999
MINISTERIO DE JUSTICIA

55.

MINISTERIO DE
RELACIONES
EXTERIORES

852002
De 60 Vols
CUYA FIRMA APARECE EN EL
DOCUMENTO DESEMPENA
LAS FUNCIONES INDICADAS

BO ASUME
RESPONSABILIDAD
DEL TEXTO

2001 MAY 14 P 1: 03
Ram
JEFE DE LEGATIZACIONES
BOGOTA D.C.

COMO NOTARIO SEXTO DE CIRCULO DE SANTA FE DE BOGOTA, HAGO CONSTAR QUE LA(S) F.M. Diego Felipe Vargas Zumbado
COINCIDE(N) CON LA FIRMA REGISTRADA POR EL (ELLOS) EN ESTA NOTARIA SANTA FE DE BOGOTA. 14 MAY 2007



7

APOSTILLE

138
137

(Convention de La Haye du 5 octobre 1961)

- 1 Country. *United States of America*
- 2. This public document
has been signed by JAMES P RICHARDS
- 3. acting in the capacity of Notary Public
- 4 bears the seal/stamp of the said notary

5. Salem, Oregon

Certified

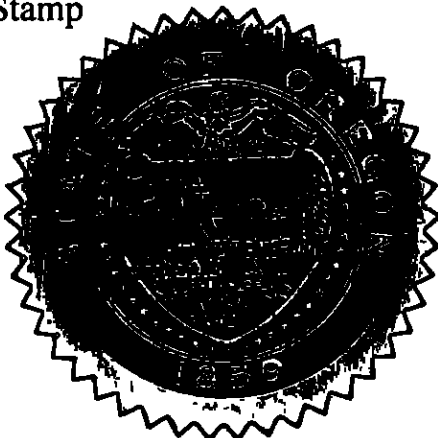
6. on Thursday, March 22, 2007

7. by: *Assistant to Secretary of State*

8. No. HC2007-2474

10. Signature

9. Seal/Stamp



Susan Marie Kreft
Susan Marie Kreft
Assistant to Secretary of State

138

CESION

ASSIGNMENT

Yo, (nosotros) abajo firmado (s)

We, the undersigned
Christopher M. Carpenter, Donald M. Conklin,
Ray J. Morris and James E. Bearden

domiciado(s)
en

all US citizens

declaro(amos) bajo juramento ser único(s) y verdadero(s)
inventor(es)

state under oath to be sole and true inventors of the invention:

de la
invención:

WEAR ASSEMBLY

declaro(amos) así mismo que cedo(emos) y transfiero(enmos),
sin

state as well, that assign, without reservations or limitations in
favour

limitación, a favor de la
sociedad

of ESCO Corporation

constituida y existente de conformidad con las leyes de

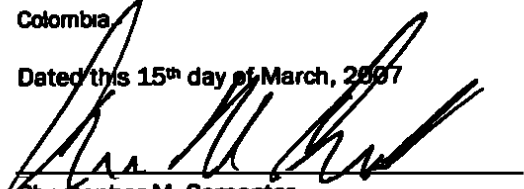
a corporation constituted and existing in conformity with the laws
of the State of Oregon

domiciada en

domicled at 2141 NW 25th Avenue
Portland, Oregon 97210-2578

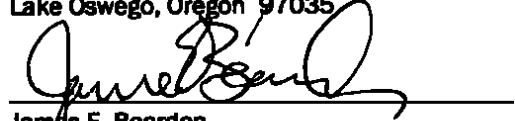
todos los derechos inherentes a dicha invención y que la
citada Compañía queda facultada para solicitar en su nombre
la patente de invención correspondiente en la República de
Colombia

all rights inherent to said invention and that the above mentioned
company hereby is enabled to apply, in its name, for the
corresponding patent invention, in the Republic of Colombia

Dated this 15th day of March, 2007

Christopher M. Carpenter
19047 SW Chesapeake Drive
Tualatin, Oregon 97062

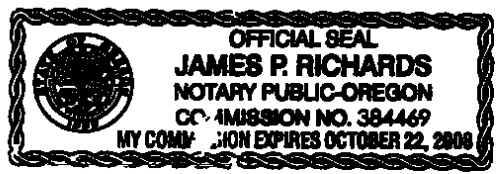

Donald M. Conklin
4575 SW Upper Drive
Lake Oswego, Oregon 97035

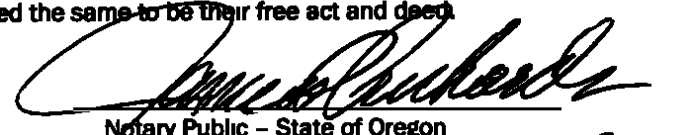

Ray J. Morris
8325 N Wabash Avenue
Portland, Oregon 97217


James E. Bearden
13520 SW Weir Road
Beaverton, Oregon 97008

STATE OF OREGON)
COUNTY OF MULTNOMAH)

On this 15th day of March, 2007, before me a Notary Public in and for the County and State aforesaid, personally appeared Christopher M. Carpenter, Donald M. Conklin, Ray J. Morris and James E. Bearden, to me known to be the persons of that name, who signed and sealed the foregoing instrument, and acknowledged the same to be their free act and deed.




Notary Public - State of Oregon
My Commission expires: 10-22-08

140
139

TRADUCCIÓN OFICIAL No. 05.10/07c realizada por Diego Vargas, Traductor Oficial, Resolución No. 0001 de 1999 del Ministerio de Justicia y registrado ante el Ministerio de Relaciones Exteriores de Colombia.

A continuación se traducen los sellos y legalizaciones de un documento mediante el cual Christopher M. Carpenter, Donald M. Conklin, Ray J. Morris y James E. Bearden, todos ciudadanos de los Estados Unidos, declaran baja ser únicos y verdaderos inventores de la invención "Montaje de Desgaste" y declaran así mismo que ceden y transfieren sin limitación a favor de **ESCO Corporation**, una sociedad constituida de conformidad con las leyes del Estado de Oregon, domiciliada en 2141 NW 25th Avenue, Portland, Oregon 97210-2578, todos sus derechos y que la citada compañía queda facultada para solicitar a su nombre la patente de invención correspondiente en la República de Colombia.

Dado y firmado el 15 de marzo de 2007.

Firma Ilegible
Christopher M. Carpenter
19047 SW Chesapeake Drive
Tualatin, Oregon 97062

Firma Ilegible
Donald M. Conklin
4575 SW Upper Drive
Lake Oswego, Oregon 97035

Firma Ilegible
Ray J. Morris
8325 N Wabash Drive
Portland, Oregon 97217

Firma Ilegible
James E. Bearden
13520 SW Weir Road
Beaverton, Oregon 97008

ESTADO DE OREGON)
CONDADO DE MULTNOMAH)

Hoy 15 de marzo de 2007, ante mí un Notario Público en y para el anterior Condado y Estado, comparecieron personalmente Christopher M. Carpenter, Donald M. Conklin, Ray J. Morris y James E. Bearden de quienes doy fe son las personas con dichos nombres, quienes suscribieron y firmaron el anterior instrumento y reconocieron que el mismo es un acto y escrito de su libre albedrío.

SELLO OFICIAL
JAMES P. RICHARDS
NOTARIO PÚBLICO - OREGON
COMISIÓN NO. 384469
MI COMISIÓN VENCE OCTUBRE 22 DE 2008

Firma Ilegible
Notario Público - Estado de Oregon
Mi Comisión vence 10-22-08

141
140

APOSTILLA

(Convention de La Haye du 5 octobre 1961)

1. País: Estados Unidos de América

Este documento público

2. ha sido firmado por JAMES P RICHARDS

3. actuando en calidad de Notario Público

4. lleva el sello/estampilla de el susodicho Notario

CERTIFICADO

5. Salem, Oregon

6. el Jueves 22 de marzo de 2007

7. por el Asistente del Secretario de Estado

8. No. HC2007-2474

10. Firma:

9. Sello/estampilla

ESTADO DE OREGON

1859

Firma Ilegible
Susan Marie Kreft
Asistente del Secretario de Estado

COPIA DE LA APOSTILLA
040118240923
01X31 J30

COPIA DE LA APOSTILLA
040118240923
01X31 J30

Es traducción fiel y completa de la cual se deja en esta
oficina para su confrontación.

DVZ/ID-8797/WPCL002G/COLO 01195-801-004-0

Diego F. Vargas
DIEGO F. VARGAS
TRADUCTOR E INTERPRETE OFICIAL
ESPAÑOL - INGLES - INGLES - ESPAÑOL
RES. 0001 DE ENERO 4 DE 1999
MINISTERIO DE JUSTICIA

NO ASUME
RESPONSABILIDAD
DEL TEXTO

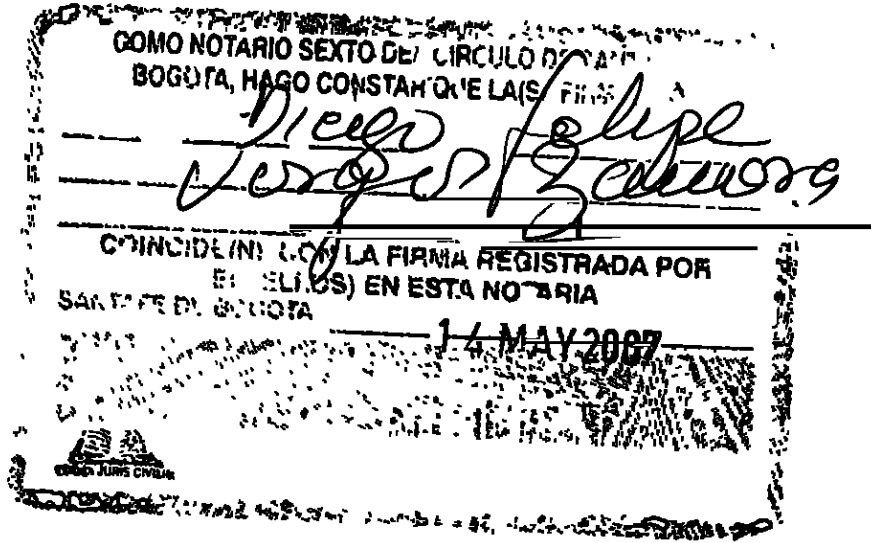
2007 MAY 14 P 1:03

Ram
JEFE DE LEGATIZACIONES
BOGOTA D.C.

MINISTERIO DE
RELACIONES
EXTERIORES

852001

Quebo Valdez
CUYA FIRMA APARECE EN EL
DOCUMENTO DESEMPENA
LAS FUNCIONES INDICADAS



142

1
REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Folio 141

2020
Bogotá D C.,

Doctor(a)
FERRERO EMILIO
Apoderado(a) y/o Representante de
ESCO CORPORATION

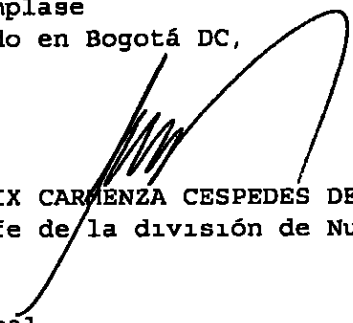
REFERENCIA	Radicación No. 07 32835
	Trámite 2
	Evento 1
	Actuación 416
	Oficio No 4036
	Folios 1

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

De acuerdo con lo previsto por el artículo 40 de la Decisión 486/00, la publicación en este caso se hará a partir del día 30 del mes de Septiembre de 2008

Cúmplase
Dado en Bogotá DC,

02 OCT 2007


ALIX CARMENZA CESPEDES DE VERGEL
Jefe de la división de Nuevas Creaciones

adpal