



- (51) International Patent Classification:
B25F 5/02 (2006.01)
- (21) International Application Number:
PCT/US2012/037927
- (22) International Filing Date:
15 May 2012 (15.05.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
13/108,914 16 May 2011 (16.05.2011) US
- (71) Applicant (for all designated States except US):
ILLINOIS TOOL WORKS INC. [US/US]; 3600 West Lake Avenue, Glenview, Illinois 60026 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SEGURA, Ricardo** [US/US]; c/o Illinois Tool Works Inc., 3600 West Lake Avenue, Glenview, Illinois 60026 (US). **FRANCIS, Ryan L.** [US/US]; c/o Illinois Tool Works Inc., 3600 West Lake Avenue, Glenview, Illinois 60026 (US).
- (74) Agent: **HAUPTMAN, Benjamin J.**; 1700 Diagonal Road, Suite 300, Alexandria, Virginia 22314 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: MULTI-POSITION UTILITY HOOK ASSEMBLY FOR A TOOL

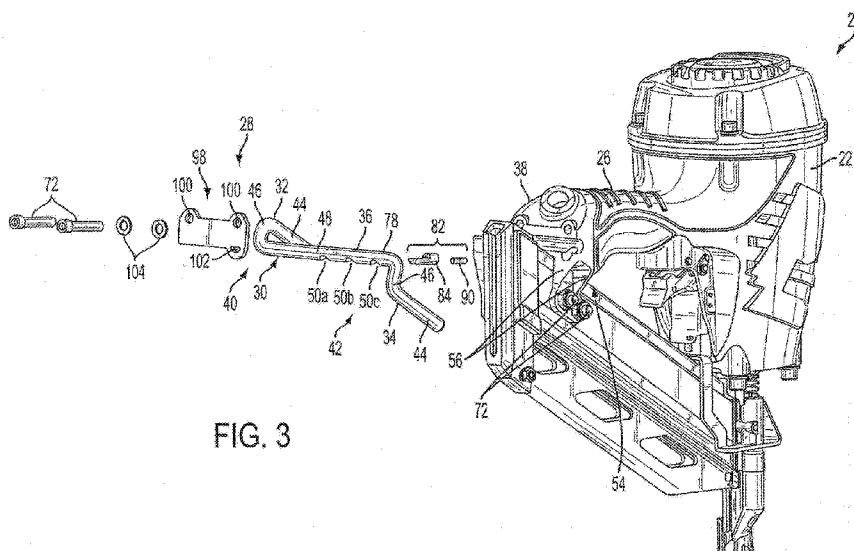


FIG. 3

(57) Abstract: A multi -position hook assembly for use in a tool that includes a hook having a first leg and a second leg joined by a top span member, and a mounting member configured for slidably receiving the top span member and releasably locking the hook in a plurality of positions.

MULTI-POSITION UTILITY
HOOK ASSEMBLY FOR A TOOL

BACKGROUND

The present disclosure relates to power tools, such as powered fastener drivers, saws, drills, and other hand-held power tools typically used on construction sites, in factories, shops or other locations. More specifically, the
5 present disclosure relates to a hook assembly for such tools.

In the construction industry, tradesmen frequently use power tools in a variety of locations. Often, it is necessary to have the tool operator's hands free for another task in places where there is no convenient surface on which to place the tool. Carpenters, for example, while using a power nailer or powered
10 fastener-driving tool to frame a building, may need to correctly position the next stud or joist before nailing it into place. While working on roof joists, rafters or on ladders, the ability to secure the tool in a convenient location, such as a rafter or a user's belt, facilitates the performance of those tasks. Tradesmen will also save time and money by keeping their tools close by and within reach.

15 Hook assemblies for power tools have been disclosed in the prior art, such as U.S. Patent No. 4,406,064 to Goss. This reference teaches a hook that is secured to the tool handle and housing through the holes that mount the handle to the housing. To stabilize the tool, the hanger extends along and covers a portion of the handle. In some tools, it is disadvantageous to cover a portion of

the handle with the hanger. Also, power tools vary considerably in their shape, the position of the handle and the distribution of the tool's weight.

Mounting of a hook on the top of a tool near the handle also may result in decreased visibility for the user. Many tools are designed to have the user look over the tool to the workpiece in order to direct its movement. In most cases, this requires looking past or near the handle of the tool. When deployed in a position to hold the tool, conventional hooks often obscure the user's field of vision. Although the prior art devices are adjustable to a position close to the body of the tool, it is inconvenient to keep moving the hook from one position to another each time the tool is used, then set aside.

Additionally, known hook assemblies for such power tools typically have only two positions, one when the hook is in use, and a second for stowing the hook out of the way while the tool is operated. In some circumstances, neither of these is a good option. In situations when the operator desires to place the tool on his belt, the position of the hook is not suitable for belt support.

There is a need for an improved hook assembly for a power tool that addresses the above-listed issues of conventional tools.

SUMMARY

Various embodiments of the present disclosure provide an improved multi-position hook assembly for a tool that mounts directly to the tool housing. The hook assembly enables the user to hang the power tool from either side of the tool in a variety of locations, including on fixed structures such as ladders or

rafters, as well as on a user's belt. In addition, the hook assembly is movable laterally relative to each side of the tool to accommodate left and right-handed users.

More specifically, the multi-position hook assembly for use in a tool
5 includes a hook having a first leg and a second leg joined by a top span member, and a mounting member configured for slidably receiving the top span member and releasably locking the hook in a plurality of positions.

In an embodiment, a multi-position hook assembly for use in a tool is provided that includes a hook having a first leg extending from a first side of
10 the hook and a second leg extending from an opposing, second side of the hook. The first and second legs of the hook are joined by a top span member including a plurality of notches. A mounting member is attached to the tool and defines a channel and a receptacle, where the channel is configured to slidably receive the hook. A lock assembly is positioned in the receptacle and includes a lock button
15 that is movable between a depressed and a non-depressed position, and a biasing member for biasing the lock button to the non-depressed position. A cover plate is mounted on the mounting member such that the top span member of the hook is positioned between the cover plate and the mounting member. In operation, the hook is slidable between a plurality of positions defined by the notches when the
20 lock button is in the depressed position, and is secured at a designated one of the plurality of positions when the lock button is moved to the non-depressed position for engaging a respective one of the notches associated with the designated position.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side perspective view of a tool equipped with the multi-position hook assembly in accordance with an embodiment of the present disclosure;

FIG. 2 is an enlarged perspective view of the mounting member of the multi-position hook assembly of FIG. 1;

FIG. 3 is an exploded rear perspective view of the multi-position hook assembly of FIG. 1 relative to mounting member secured to the tool;

FIG. 4 is a fragmentary, vertical cross-section view of the tool and the multi-position hook assembly of FIG. 1;

FIG. 5 is a rear perspective view of the tool and the multi-position hook assembly of FIG. 1 showing the hook assembly in a first position;

FIG. 6 is a rear perspective view of the tool and the multi-position hook assembly of FIG. 1 showing the hook assembly in a second position; and

FIG. 7 is a rear perspective view of the tool and the multi-position hook assembly of FIG. 1 showing the hook assembly in a third position.

DETAILED DESCRIPTION

Referring now to FIG. 1, a pneumatically-powered, fastener-driving tool 20 suitable for incorporating the multi-position hook assembly is shown. The tool 20 includes a main housing 22, usually die cast metal, however, other materials are contemplated. The main housing 22 encloses a power unit 24 (shown hidden). In certain embodiments, the power unit 24 is pneumatic, however, combustion-powered units are contemplated as disclosed in commonly assigned U.S. Patent Nos. 4,483,473; 4,522,162; 6,145,724; and 6,679,414, all of which are incorporated by reference. The main housing 22 also includes a handle 26. When a workpiece contact element 27 is depressed against a workpiece and a trigger 29 is pulled, the power unit 24 causes a piston with a driver blade (not shown) to travel under pressure to drive a fastener as is well known in the art. While the tool 20 is depicted as being of one type of a fastener-driving tool, other types of fastener-driving tools, as well as other portable power tools, including but not limited to saws and drills, are contemplated as having the potential of incorporation of the multi-position hook assembly.

Referring now to FIGs. 1, 3 and 4, the multi-position hook assembly 28 includes a hook 30 having a first leg 32 and a second leg 34 joined and spaced apart by a top span member 36. The hook assembly 28 includes a mounting block or mounting member 38 configured for slidably receiving the top span member 36 of the hook 30 and for releasably locking the hook in more than one position.

The hook 30 is preferably constructed from a single length of formed wire. However, it should be appreciated that other materials and

fabrication techniques are contemplated. As seen in FIG. 3, the first and second legs 32, 34 of the hook 30 extend from opposing ends 40 and 42 of the top span member 36. The first and second legs 32, 34 are each generally L-shaped and include a top member 44 and a side member 46 where the side member is
5 integrally formed with a respective end 40, 42 of the top span member 36. In the preferred embodiment, the hook 30 is configured so that the first and second legs 32, 34 extend from opposing sides of the top span member 36 at 90° angles relative to the span member to allow the hook to be easily secured to a belt loop, framing member, ladder, scaffold and other similar structures from either side of
10 the tool 20. It should be appreciated that other angles of orientation are contemplated.

As shown in FIGs. 3 and 4, the top span member 36 has a generally round or circular cross-sectional shape with one side that is machined as a flat surface 48. Three semi-circular notches 50a, 50b and 50c are formed on the top
15 span member 36 for securing the hook 30 in different positions relative to the mounting member. It should be appreciated that the top span member 36 of the hook 30 may include one or a plurality of notches 50a, 50b and 50c.

Referring now to FIGs. 2 and 4, the mounting member 38 is preferably integrally formed and includes a body 52 and a mounting arm 54
20 extending from the body. The mounting arm 54 includes spaced triangular gusset-like supports 56 and a side mounting portion 58 having an outer surface 60 that is transverse to a front surface 62 of the body 52. The front surface 62 faces the rear of the tool 20. The side mounting portion 58 defines a pair of through-

holes 64 that align with corresponding through-holes (not shown) formed in the magazine of the tool 20 and are used to mount the magazine to the tool. Similarly, the body 52 defines a pair of through-holes 68 that are aligned with threaded openings 70 on the end of the tool 20. Suitable fasteners, such as threaded bolts 72, are inserted through the through-holes 64, 68 and are threaded and secured using locknuts 66 on the magazine or in the threaded openings 70 on the tool 20 for respectively mounting the magazine and the mounting member 38 to the tool.

The body 52 of the mounting member 38 defines a semi-circular channel 74 that is configured for slidably receiving the hook 30. Specifically, the channel 74 has a rounded inner surface 76 that corresponds to a rounded exterior 78 of the hook 30. The size of the channel 74 is dimensioned to be slightly larger than a diameter of the hook 30 so that the hook freely slides laterally within the channel.

As shown in FIG. 2, a circular receptacle 80 is defined by the body 52 and is positioned at least partially in the channel 74. The receptacle 80 is configured to receive a lock assembly 82 for locking the hook 30 at a particular position relative to the mounting member 38.

Referring now to FIGs. 3 and 4, the lock assembly 82 includes a lock actuator or lock button 84 having a generally circular first end 86 and a semi-circular second end 88, and a biasing member, such as coil spring 90. The first end 86 of the lock button 84 defines an inner receptacle 92 sized to receive the coil spring 90 for securing an end of the coil spring to the lock button. A first end

94 of the coil spring 90 is positioned in the receptacle 80 on the body 52 of the mounting member 38 and an opposing second end 96 is positioned in the lock button receptacle 92 (see FIG.4). Thus, the coil spring 90 compresses as the lock button 84 is depressed or moved to a depressed position and expands and biases
5 the button 84 outwardly when the button is released to the default non-depressed, or locked position (FIG. 4). As further described below, the circular first end 86 of the lock button 84 is configured to matingly engage one of the notches 50a, 50b or 50c on the top span member 36 of the hook 30 for securing the hook at a particular position. When the lock button 84 is depressed, the semi-circular end
10 88 of the button moves into the notch 50a, 50b or 50c thereby disengaging the hook 30 from the button 84 and allowing the hook to slide laterally in the channel 74.

Referring to FIG. 3, a generally planar cover plate 98 secures the hook 30 and the lock assembly 82 in position on the mounting member 38. In
15 addition, the cover plate 98 prevents the hook 30, the button 84 and the spring 90 from becoming separated from the mounting member 38. The cover plate 98 defines a pair of spaced mounting holes 100 on one side, and a semi-circular through-hole 102 on an opposing side. The mounting holes 100 are aligned with corresponding through-holes 68 on the body 52 of the mounting member 38 and
20 fasteners, such as the threaded bolts 72 described above, are inserted into each of the mounting holes 100, through the through-holes 68 and into threaded openings or receptacles 70 on the tool 20 to secure the cover plate 98 on the mounting member. To further secure the fasteners in position, a lock washer 102 is

respectively placed on each of the bolts 72 prior to securing the bolts to the mounting member 38 and the tool 20.

As shown in FIG. 4, the flat surface 48 of the top span member 36 is placed against the planar cover plate 98 to prevent the hook 30 from rotating within the channel 74 after assembly. This construction enables the hook 30 to remain stably in position during use. The lock button 84 is positioned slightly below the hook 30 so that the semi-circular end 88 of the lock button slidingly engages the corresponding semi-circular hole 102 on the cover plate 98. The end 88 protrudes outwardly from the cover plate 98 so that a user can easily depress the lock button 84. As described above, the round end 86 of the lock button 84 engages a corresponding one of the notches 50a, 50b or 50c on the hook 30 when the button is in the non-depressed position.

Referring now to FIGs. 3 and 5-7, in the illustrated example, the hook 30 is adjustable to three different positions for securing the tool 20 to a belt, a framing member, a ladder or other structure. In a first position shown in FIG. 5, the hook 30 is moved laterally within the channel so that the leftmost notch 50a, as viewed from the rear end of the tool 20, is aligned with and engaged by the lock button 84. The first leg 32 abuts the mounting member 38 and the second leg 34 is spaced a designated distance from the mounting member such that a framing member, such as a stud or joist, fits between the second leg and the mounting member for temporarily hanging the tool 20 from the framing member or joist. Specifically, an outer surface 78 (FIG. 3) of the hook 30 rests on an outer surface of a framing member and the second leg 34 extends along and engages a

transverse side or surface of the framing member for keeping the hook assembly 28 from falling off of the framing member. To move the hook 30 to a different position, a user depresses the lock button 84, which disengages the lock button from the leftmost notch 50a and allows the hook 30 to move laterally within the
5 channel 74 relative to the mounting member 38 without the use of tools.

In FIG. 6, the hook 30 is in a second position where the lock button 84 is engaged with the centermost notch 50b on the top span member 36. In this position, the first and second legs 32 and 34 of the hook 30 are spaced an equal distance from the mounting member 38 to allow a user to insert the first or second
10 leg respectively over their belt or upper pants edge on either the left side or the ride side of their body.

In FIG. 7, the hook 30 is moved so that the lock button 84 is engaged in the rightmost notch 50c on the top span member 36 as the hook assembly 28 is viewed from the rear end of the tool 20. In this position, the first
15 leg 32 is spaced a designated distance from the mounting assembly 38 for receiving a framing member between the first leg and the mounting member. The positioning of the top span member 36 along one surface of the framing member and the top member 44 of the first leg 32 on a transverse side of the framing member enables the hook 30 to stably and securely hold the tool 20 in place on
20 the framing member.

As described above, the hook 30 is movable between several different positions to enable a user to temporarily and selectively secure the tool 20 to a framing member, a user's belt, a ladder, a scaffold or other structure

quickly and easily regardless of whether the framing member, belt or structure is on a user's right side or their left side or whether the user is right-handed or left-handed. Furthermore, the secure engagement of the lock button 84 in the notches 50a, 50b and 50c on the hook 30 provides a stable and safe way to temporarily
5 secure a tool 20 on a framing member, belt or other structure on a job site.

While particular embodiments of the multi-position hook assembly for a power tool have been described herein, it will be appreciated by those skilled in the art that changes and modifications may be made thereto without departing from the invention in its broader aspects and as set forth in the following claims.

CLAIMS:

1. A multi-position hook assembly for use in a tool, said hook assembly comprising:
 - a hook having a first leg and a second leg joined by a top span member;
 - 5 a mounting member configured for slidably receiving said top span member and releasably locking said hook in a plurality of positions.
2. The hook assembly of claim 1, wherein said first and second legs of said hook extend from opposing sides of said top span member.
3. The hook assembly of claim 1, wherein said first leg and said second leg each include a top member and a side member, and wherein said top member and said side member are generally positioned to form an L-shape.
4. The hook assembly of claim 1, wherein said top span member defines a plurality of notches, each of said notches associated with different positions of said hook.

5. The hook assembly of claim 4, further comprising a lock button movably connected to said mounting member and configured to selectively engage each of said notches, wherein said lock button secures said hook in one of said positions.

6. The hook assembly of claim 1, further comprising a lock assembly positioned in a receptacle on the mounting member, said lock assembly configured to temporarily lock the hook at one of a plurality of positions.

7. The hook assembly of claim 6, wherein said lock assembly includes a lock button defining a receptacle and being movable between a depressed position and a non-depressed position, and a biasing member including an end positioned in said receptacle for biasing said lock button to said non-depressed position.

8. The hook assembly of claim 1, further comprising a cover plate positioned over said hook and secured to said mounting member, said top span member of said hook including a flat surface that engages said cover plate for preventing rotation of said hook.

9. The hook assembly of claim 1, wherein said mounting member further comprises an arm extending along a side of the tool for connecting the mounting member thereto.

10. The hook assembly of claim 1, wherein said hook includes a first end and a second end and said mounting member releasably locks said hook in a first position, wherein said first end abuts said mounting member and said second end is positioned a designated distance from said mounting member, in a
5 second position, wherein said first and second ends are positioned an equal distance from opposing sides of said mounting member, and in a third position, wherein said second end abuts said mounting member and said first end is positioned a designated distance from said mounting member.

11. A multi-position hook assembly for use in a tool, said hook assembly comprising:

a hook having a first leg extending from a first side of said hook and a second leg extending from an opposing, second side of said hook, said first and
5 second legs being joined by a top span member including a plurality of notches;

a mounting member attached to the tool and defining a channel and a receptacle, said channel configured to slidably receive said hook;

a lock assembly positioned in said receptacle and including a lock button movable between a depressed position and a non-depressed position, and a
10 biasing member for biasing said lock button to said non-depressed position; and

a cover plate mounted on the mounting member, said top span member of said hook being positioned between said cover plate and said mounting member,

wherein the hook is slidable between a plurality of positions defined
15 by said notches when said lock button is in said depressed position, and is secured at a designated one of said plurality of positions when said lock button is moved to said non-depressed position for engaging a respective one of said notches associated with said designated position.

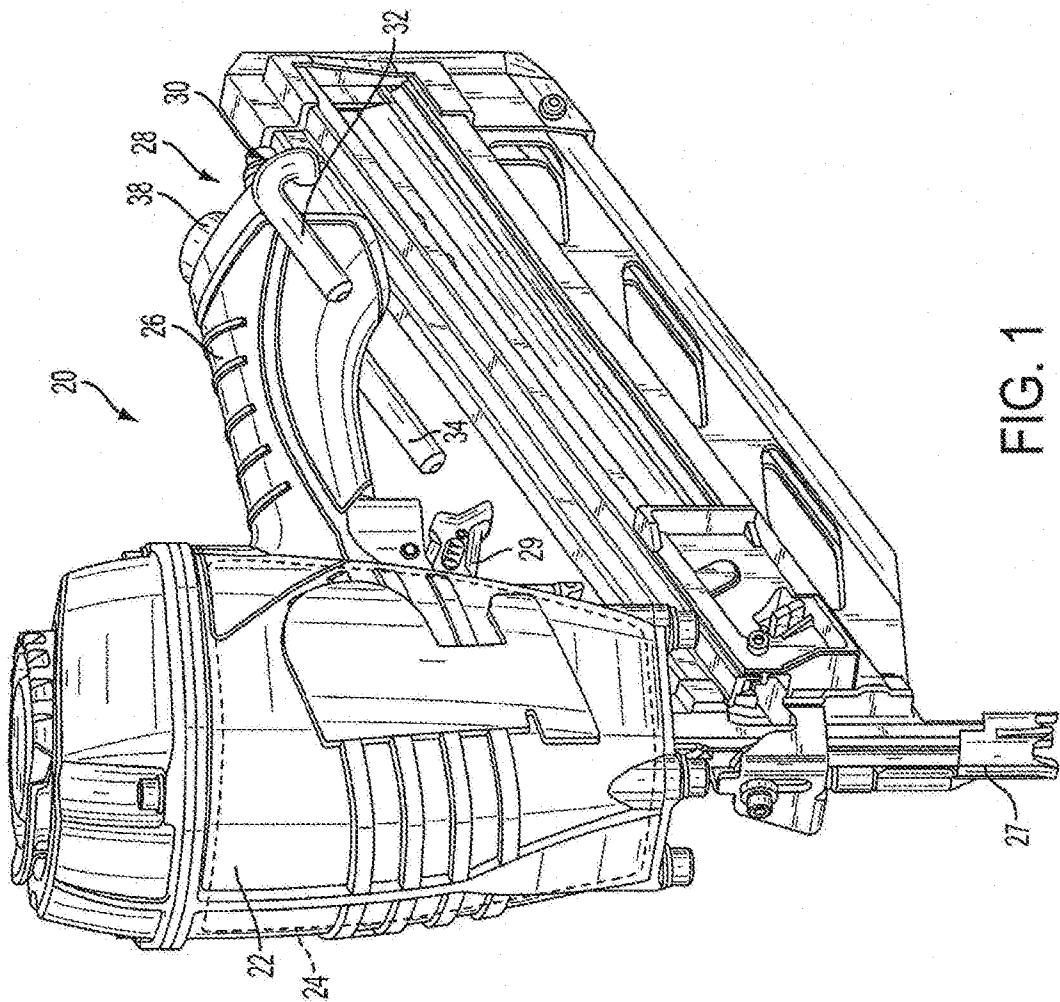
12. The hook assembly of claim 11, wherein said top span member of said hook includes a flat surface that engages said cover plate for preventing rotation of said hook in said channel.

13. The hook assembly of claim 11, wherein said lock button includes a circular first end that matingly engages each of said notches, and a semi-circular second end that is disengaged from said notches for allowing said hook to laterally slide within said channel.

14. The hook assembly of claim 11, wherein said first and second legs are each at 90° angles relative to said top span member.

15. The hook assembly of claim 11, wherein said cover plate defines an opening for slidably receiving said lock button, said lock button extending outwardly a designated distance from said cover plate when said lock button is in said non-depressed position.

16. The hook assembly of claim 11, wherein a first one of said plurality of notches is associated with a first position, wherein said first leg abuts said mounting member and said second leg is positioned a designated distance from said mounting member, a second one of said notches is associated with a second position, wherein said first and second legs are positioned an equal distance from opposing sides of said mounting member, and a third one of said notches is associated with a third position, wherein said second leg abuts said mounting member and said first leg is positioned a designated distance from said mounting member.



2/7

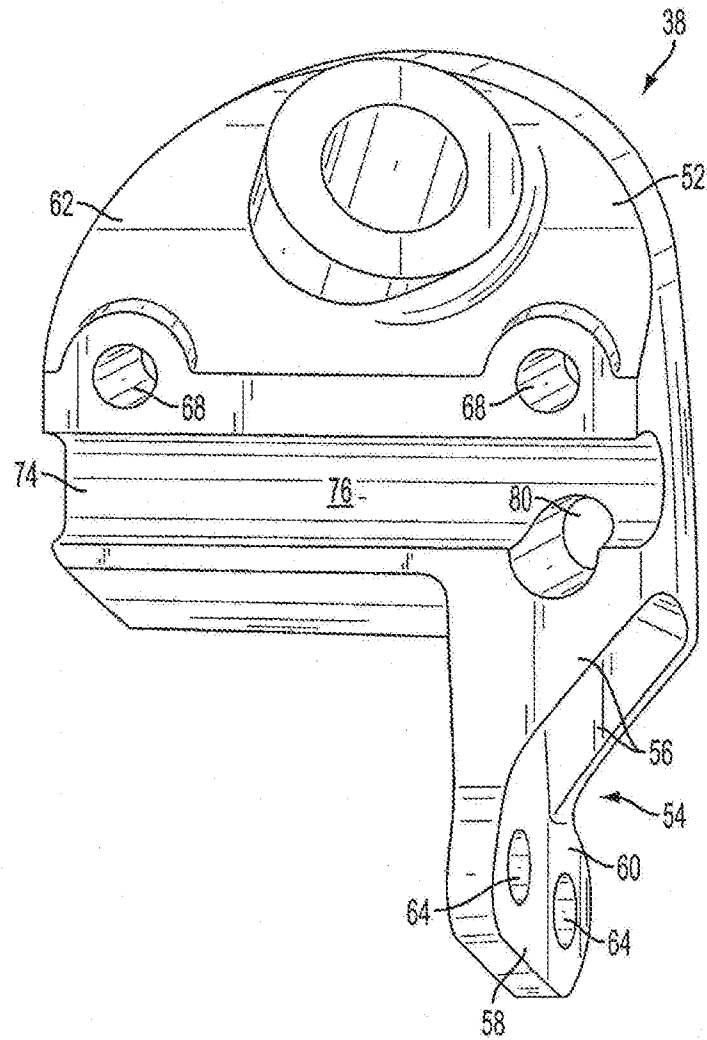


FIG. 2

3/7

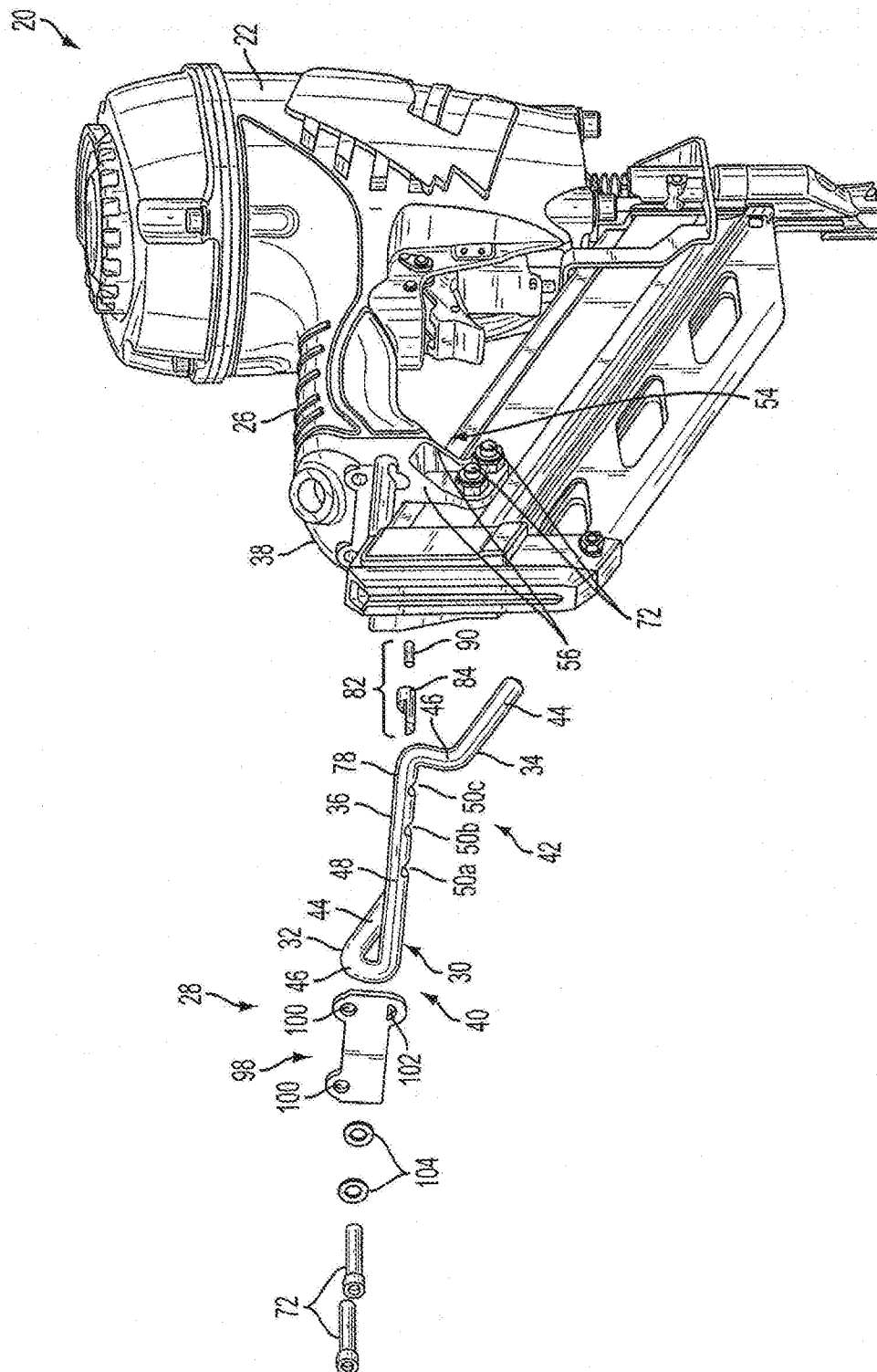


FIG. 3

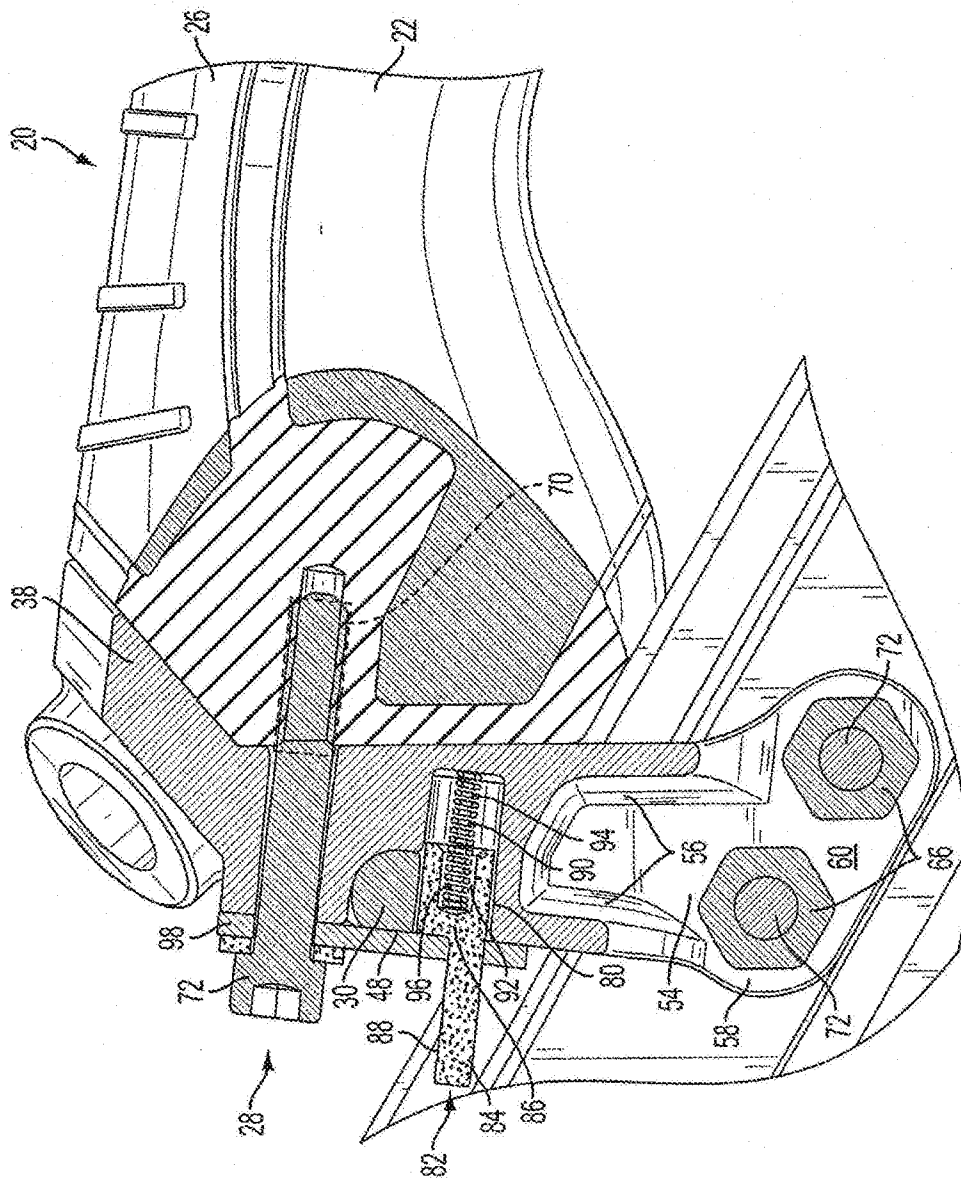


FIG. 4

5/7

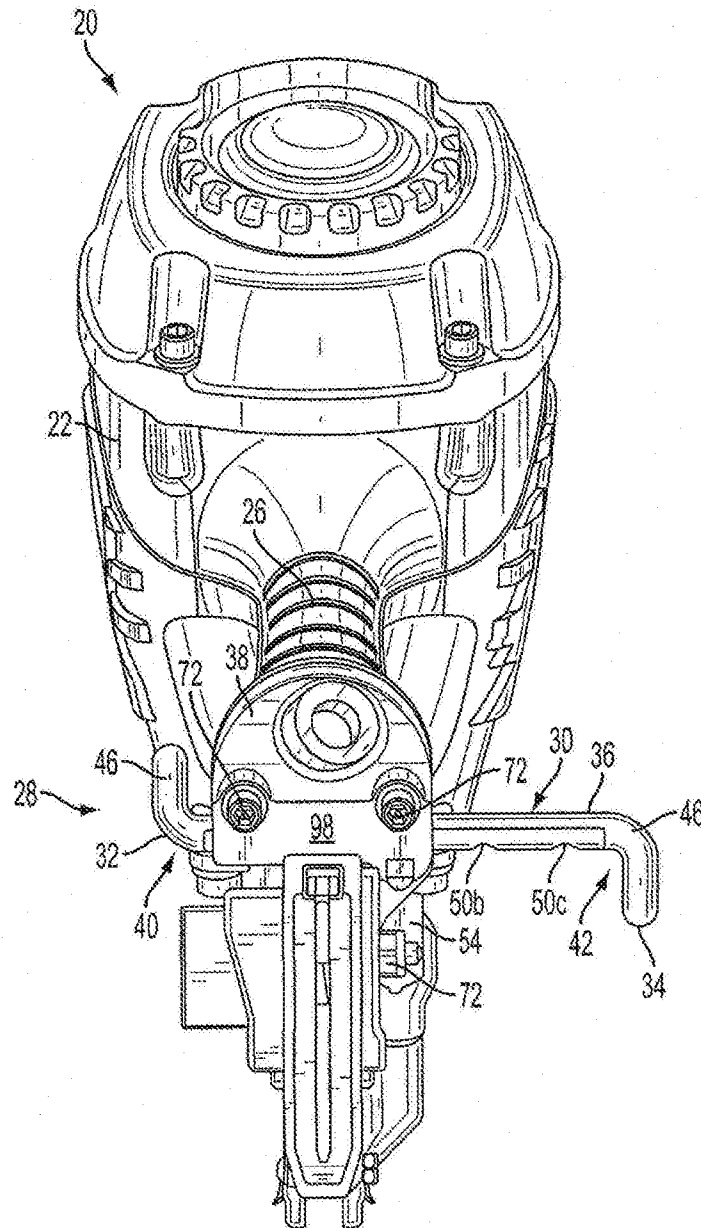


FIG. 5

6/7

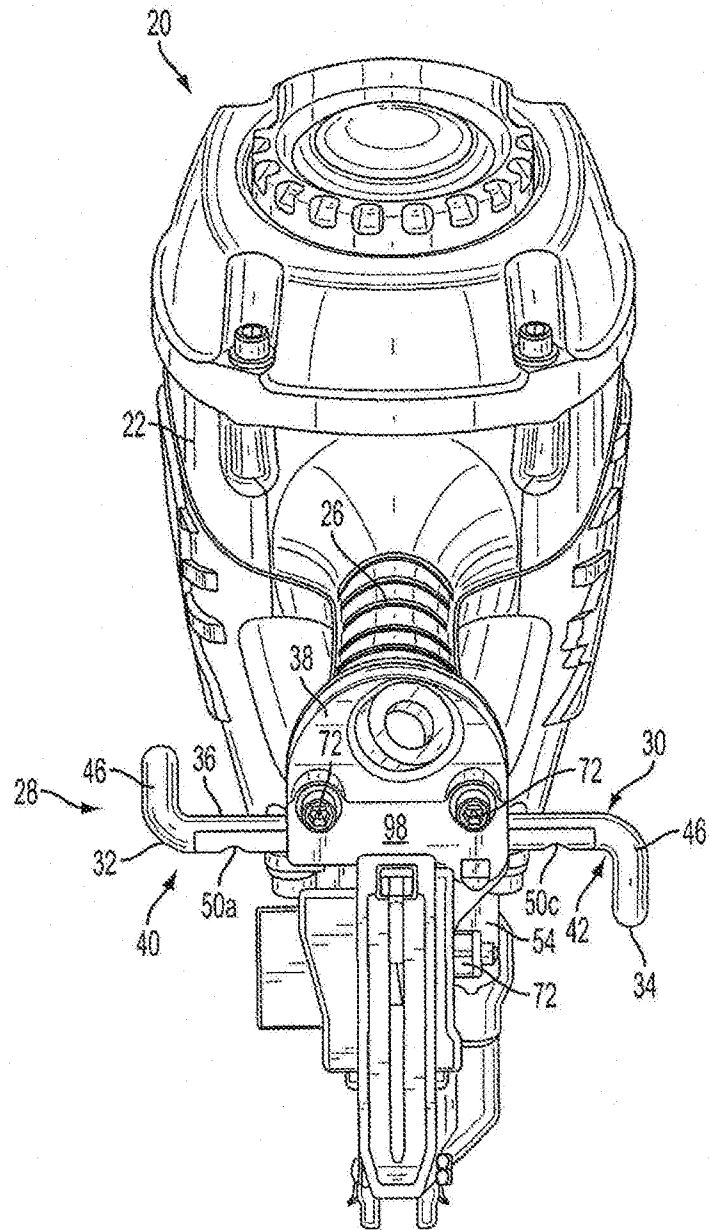


FIG. 6

7/7

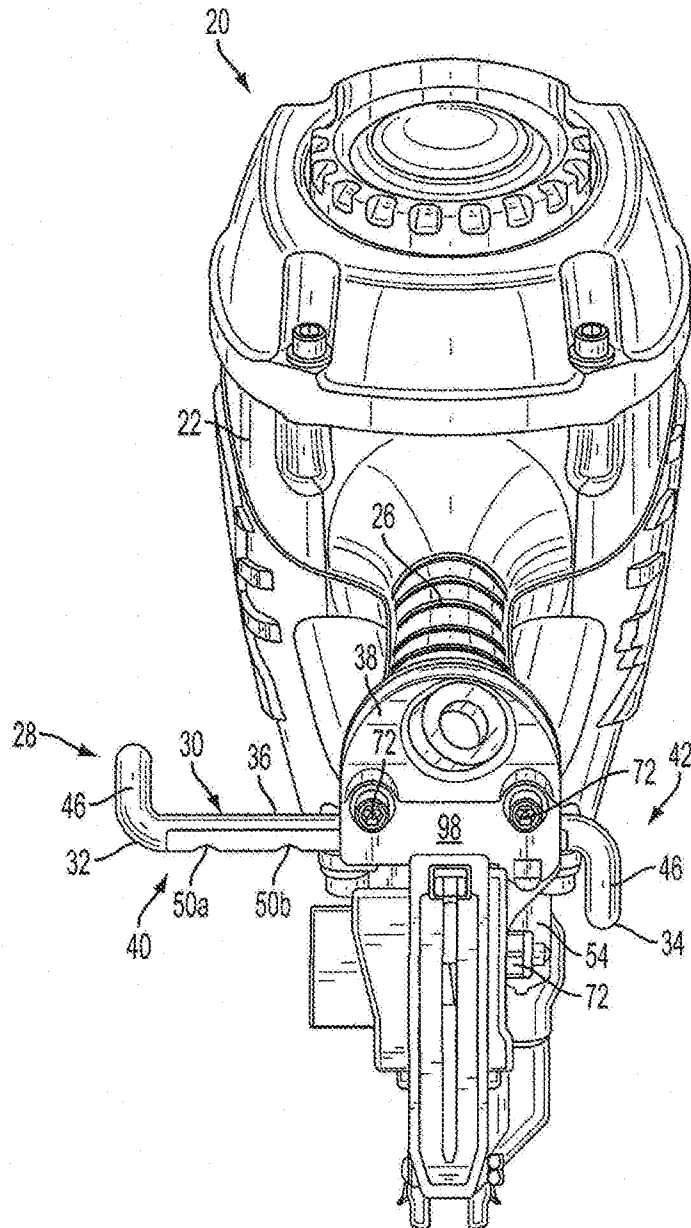


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/037927

A. CLASSIFICATION OF SUBJECT MATTER
INV. B25F5/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B25H B25F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 022 607 A2 (MAKITA CORP [JP]) 11 February 2009 (2009-02-11) paragraphs [0042] - [0048]; figures -----	1,2,4-8, 10-12, 14-16
X	EP 1 231 028 A2 (BLACK & DECKER INC [US]) 14 August 2002 (2002-08-14) paragraphs [0065] - [0070]; figures -----	1,2,4
A		3,5,8, 11,14
Y	EP 1 327 500 A2 (ILLINOIS TOOL WORKS [US]) 16 July 2003 (2003-07-16) paragraph [0020]; figures 3-4 -----	3
Y	US 2011/108300 A1 (NAGASAKA HIDENORI [JP] ET AL) 12 May 2011 (2011-05-12) paragraph [0031]; figures 1-3 ----- -/-	3



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

27 September 2012

Date of mailing of the international search report

15/10/2012

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Flodström, Benny

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/037927

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7 127 971 B1 (BRAUN JAMES [US]) 31 October 2006 (2006-10-31)	2
Y	column 3, line 14 - column 4, line 47; figures -----	3

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/037927

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 2022607	A2	11-02-2009	EP	2022607	A2	11-02-2009
			US	2009025515	A1	29-01-2009

EP 1231028	A2	14-08-2002	EP	1231028	A2	14-08-2002
			EP	2098338	A1	09-09-2009
			EP	2269774	A2	05-01-2011
			EP	2269775	A2	05-01-2011
			EP	2269776	A2	05-01-2011
			EP	2269777	A2	05-01-2011
			EP	2269778	A2	05-01-2011
			EP	2269779	A2	05-01-2011
			US	2002117531	A1	29-08-2002
			US	2006081676	A1	20-04-2006
			US	2006124684	A1	15-06-2006

EP 1327500	A2	16-07-2003	AT	366644	T	15-08-2007
			AU	2003200030	B2	22-07-2004
			CA	2414131	A1	14-07-2003
			CN	1432452	A	30-07-2003
			DE	60314787	T2	10-04-2008
			DK	1327500	T3	05-11-2007
			EP	1327500	A2	16-07-2003
			ES	2290407	T3	16-02-2008
			JP	4302992	B2	29-07-2009
			JP	2003211365	A	29-07-2003
			MX	PA03000400	A	31-07-2003
			NZ	523573	A	29-08-2003
			PT	1327500	E	26-09-2007
			US	2003132264	A1	17-07-2003

US 2011108300	A1	12-05-2011	CN	102049764	A	11-05-2011
			JP	2011101919	A	26-05-2011
			US	2011108300	A1	12-05-2011

US 7127971	B1	31-10-2006	NONE			

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/037927

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8, 10-12, 14-16

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8, 10-12, 14-16

A hook assembly comprising potential special technical features relating to said first leg and said second leg each including a top member and a side member, and wherein said top member and said side member are generally positioned to form an L-shape.

2. claim: 9

A hook assembly comprising potential special technical features relating to said mounting member further comprising an arm extending along a side of the tool for connecting the mounting member thereto.

3. claim: 13

A hook assembly comprising potential special technical features relating to said lock button including a circular first end that matingly engages each of said notches, and a semi-circular second end that is disengaged from said notches for allowing said hook to laterally slide within said channel.
