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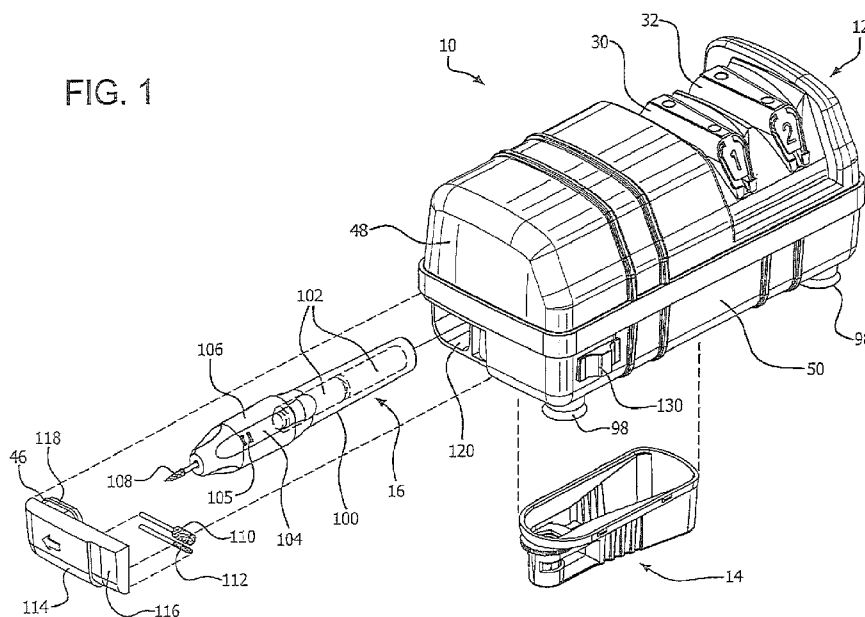
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[Continued on next page]

- (54) **Title:** COMBINATION SHARPENER ASSEMBLY

FIG. 1



- (57) **Abstract:** A combination sharpener assembly which is particularly useful for fishermen, includes an electrically powered knife sharpener. A manually operated scissors sharpener is mounted in the recess of the housing for the knife sharpener. A hook sharpener is detachably mounted in a compartment in the housing of the knife sharpener. The motor for the knife sharpener is mounted in a sealed inner housing and can be selectively operated under either direct current or alternating current.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

— *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))*

Published:

— *with international search report (Art. 21(3))*

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11 June 2015

INTERNATIONAL SEARCH REPORT

PCT/US14/31797

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B24B 3/52, 3/54, 7/00 (2014.01)

USPC - 76/82.2; 451/45, 555

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)

IPC(8) Classification(s): B24B 3/00, 3/52, 3/54, 7/00 (2014.01)

USPC Classification(s): 76/82, 82.2; 451/45, 65, 234, 267, 282, 344, 349, 552, 555; CPC Classification(s): B24D 15/06, 15/063, 67/00

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)

MicroPatent (US Granted, US Applications, EP-A, EP-B, WO, JP, DE-G, DE-A, DE-T, DE-U, GB-A, FR-A);
 Google.com, scholar.google.com; DialogPro (Derwent, INSPEC, NTIS, PASCAL, Current Contents Search, Dissertation Abstracts Online, Inside Conferences); KEYWORDS: knife, scissor, fish hook, hook, sharpen, abrasive, guide, stage, sharpener, motor, battery, current, alt

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	EP 0624117 B1 (HEPWORTH P. S.) August 27, 1997; figures 1, 2; column 3, lines 20-30, column 4, lines 35-45	1-3, 9 --- 8
X --- Y	"Knife Sharpening with a Tri-Hone Stone", March 6, 2012; figures 1-2 of page 2; [video, retrieved online] URL: < http://www.youtube.com/watch?v=Y493qj-VWEk/ >	17 --- 22-23
Y	US 2005/0037700 A1 (FRIEL D. D. SR.) February 17, 2005; entire document	22-23
Y	US 7,112,124 B1 (NAPLES D.) September 26, 2006; column 1, lines 30-45	8
A	US 5,142,785 A (GREWAL M. S. et al.) September 01, 1992; figure 4; column 1, lines 5-35	1-9, 17-26
A	US 6,752,702 B1 (THOMPSON T. et al.) June 22, 2004; abstract; column 1, lines 55-60	1-9, 17-26
A	US 4,231,194 A (GLESSER L. S.) November 04, 1980; entire document	1-9, 17-26
A	US 4,807,399 A (FRIEL D. D.) February 28, 1989; entire document	1-9, 17-26
A	US 5,438,757 A (WESCHENFELDER S.) August 08, 1995; entire document	1-9, 17-26
A	US 5,199,225 A (ESPOSITO R.) April 06, 1993; entire document	1-9, 17-26
A	US 6,454,642 B1 (FIERUS U. et al.) September 24, 2002; entire document	1-9, 17-26

☐ Further documents are listed in the continuation of Box C.


* 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

16 October 2014 (16.10.2014)

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INTERNATIONAL SEARCH REPORT

PCT/US14/31797

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2007/148878 A1 (AN Y. B.) December 27, 2007; entire document	1-9, 17-26
A	US 5,673,599 A (BYERS G. L. et al.) October 07, 1997; entire document	1-9, 17-26
A	US 6,267,652 B1 (FRIEL D. D. SR. et al.) July 31, 2001; entire document	1-9, 17-26
A	US 2011/0201257 A1 (WALKER S. R.) August 18, 2011; entire document	1-9, 17-26
A	US 2012/0258651 A1 (SMITH R. S. et al.) October 11, 2012; entire document	1-9, 17-26
A	WO 2000/07769 A (WIGHTMAN J. et al.) February 17, 2000; entire document	1-9, 17-26

-***-Continued from Box No. III: Observations where unity of invention is lacking-***-

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-9 are directed toward a sharpening module having at least one sharpening member, and a guide area adjacent said sharpening member.

Group II: Claims 10-16 are directed toward an outer housing, a motor in said outer housing, said motor is mounted in an inner chamber, a chamber lid mounted to and over said inner housing.

Group III: Claims 17-26 are directed toward a manually operated sharpener comprising a base, a carousel, a first abrasive pad, and a second abrasive pad.

Group IV: Claims 27-30 are directed toward sharpening the cutting edge in a sharpening operation, detaching the sharpening module from the sharpening unit.

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons.

The special technical features of Group I include an electrically powered sharpening unit, said sharpening unit having (which is not present in Groups II or III) at least one sharpening stage with at least one sharpening element in said sharpening stage, said sharpening unit having a motor, said sharpening element being movably driven by said motor (which is not in Groups III or IV) whereby a cutting edge of a cutting tool may be placed against said sharpening element so that said sharpening element sharpens the cutting edge of the tool, a sharpening module detachably mounted to said sharpening unit (which is not present in Groups II or III), said sharpening module having at least one sharpening member, and a guide area adjacent said sharpening member whereby a cutting edge of a cutting instrument may be placed in said guide area and disposed against said sharpening member to be sharpened (which is not present in Groups II-IV).

The special technical features of Group II include an outer housing, a motor in said outer housing (which is not present in Groups I, III, or IV), at least one sharpening stage, at least one sharpening element in said sharpening stage rotatably mounted on a shaft driven by said motor (which is not present in Groups III or IV), the improvement being in that said motor is mounted in an inner chamber within said outer housing, said chamber being defined by an inner housing, a chamber lid mounted to and over said inner housing, and sealing material between said inner housing and said lid to minimize any water entering said chamber (which is not present in Groups I, III, or IV).

The special technical features of Group III include a base, a hollow housing shell mounted to said base, a shell extension above said base, a guide surface in said shell extension, a carousel in said shell extension, said carousel having a rotatable barrel, a first abrasive pad mounted to said barrel, a second abrasive pad mounted to said barrel, rotation of said barrel selectively disposing each of said first abrasive pad and said second abrasive pad adjacent to said guide surface, and each of said first abrasive pad and said second abrasive pad differing from each other in abrasive characteristics (which is not present in Groups I, II, or IV).

The special technical features of Group IV include providing a combination sharpener assembly which includes a power operated sharpening unit and a sharpening module detachably mounted to the sharpening unit, placing the cutting edge of a cutting tool in the power operated unit (which is not present in Groups II or III), sharpening the cutting edge in a sharpening operation, detaching the sharpening module from the sharpening unit, and sharpening a cutting instrument in the sharpening module either before or after the sharpening operation with the power operated unit (which is not present in Groups I-III).

The common technical features of Groups I-IV include an electrically powered sharpening unit, said sharpening unit having at least one sharpening stage with at least one sharpening element in said sharpening stage, said sharpening unit having a motor, said sharpening element being movably driven by said motor whereby a cutting edge of a cutting tool may be placed against said sharpening element so that said sharpening element sharpens the cutting edge of the tool, a sharpening module detachably mounted to said sharpening unit.

These common technical features are disclosed by EP 0624117 B1 (HEPWORTH): an electrically powered sharpening unit (the tool 10 (electrically powered sharpening unit) is electrically powered; column 3, lines 20-25), said sharpening unit having at least one sharpening stage with at least one sharpening element in said sharpening stage (tool 10 (sharpening unit) is shown to comprise rotatable grinding wheel 20 (sharpening element) on which an adapter 13 is attached comprising wall 95 and central opening 99 (defining sharpening stage, collectively); figures 1, 3; column 4, lines 35-40, column 5, lines 15-25), said sharpening unit having a motor, said sharpening element being movably driven by said motor whereby a cutting edge of a cutting tool may be placed against said sharpening element so that said sharpening element sharpens the cutting edge of the tool (grinding wheel 20 (sharpening element) of tool 10 (sharpening unit) is rotatably (movably) driven by motor 40 wherein a knife (cutting edge of the tool) is arranged on top surface 95 (of the sharpening stage) for engaging the wheel 20 (sharpening element) for sharpening the knife (cutting edge of the tool); figures 1, 3; column 5, lines 30-45), a sharpening module detachably mounted to said sharpening unit (adapters such as 11 and 12 (sharpening modules) can be snap fittingly engaged (detachably mounted) with the base of tool 10 (sharpening unit), and are stored (detachably mounted) on the side of tool 10 (sharpening unit) via surface 23; figures 1, 2; column 3, lines 1-25).

Because the common technical features are disclosed by Hepworth, the inventions are not so linked as to form a single general inventive concept. Therefore, Groups I-IV lack unity.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/31797

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:

-Please See Supplemental Page-

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 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.:
1-9, 17-26
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.:

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.