

NOVELTY ASSESSMENT

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Matter: Fixed Blade Multi-Function Camping Tool

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CONFIDENTIAL

This report does not constitute a legal opinion. Further searching and/or attorney review is recommended before relying on these results.

1. EXECUTIVE SUMMARY

The invention is a fixed-blade camping and bushcraft tool integrating seven distinct features across two components: a 13-inch stainless steel blade with a full-length cutting edge, a rounded tip for digging/trenching, a saw-toothed spine for rasping/sawing wood, and an integral spine-mounted strike plate at the fore-end for splitting kindling; and an ergonomic handle with a bulbous pommel, a hilt guard, and a lanyard hole. The patent landscape for multi-function survival and camping knives is dense, with numerous references disclosing combinations of cutting edges, spine serrations, and handle ergonomic features. No single identified reference discloses all seven key features in combination; however, multiple references disclose individual features or subsets, and combinations of existing art could render portions of the invention potentially obvious. The strike plate at the blade fore-end of the spine (F4) — specifically positioned on the blade itself rather than at the handle pommel — is the most potentially distinctive feature of this disclosure. Consider a freedom-to-operate/right-to-market search if features from identified prior art references are used.

2. FEATURE COVERAGE MATRIX

FEATURE COVERAGE MATRIX

Invention: Fixed Blade Multi-Function Camping Tool Key Features: F1: Full-length cutting blade (stainless steel, ~13 inches) F2: Rounded blade tip for trenching/digging F3: Saw-toothed/serrated edge along the spine (rasp/saw function) F4: Strike plate at fore-end of spine for splitting wood/kindling F5: Bulbous/widened pommel end for grip retention F6: Hilt/guard preventing hand-over-blade slippage F7: Lanyard hole at handle end

Reference	F1	F2	F3	F4	F5	F6	F7
US5442856A	YES	YES	Partial*	NO	NO	NO	Partial**
CA2129395A1	YES	YES	Partial*	NO	NO	NO	NO
RU2110034C1	YES	NO	YES	NO	NO	NO	NO
RU4597U1	YES	NO	YES	NO	NO	NO	NO
KR101733427B1	YES	NO	NO	~YES**	YES	YES	YES
DE10130178A1	YES	NO	YES	NO	NO	NO	NO
EP1272316B1 (MustAx)	YES	NO	NO	NO***	NO	NO	NO

Reference	F1	F2	F3	F4	F5	F6	F7
US4688287A	NO	NO	NO	NO***	NO	NO	NO

Notes:

- US5442856A/CA2129395A1: Explicitly states the linear (spine-side) edge "can be formed with a serrated edge or saw-tooth edge"

but as an option — the primary disclosure is an unsharpened linear edge. The saw function is possible but not the primary teaching. **US5442856A: Hook-shaped end at handle outer end used to prevent slippage during chopping — functionally related to F7/F5 but structurally distinct from a bulbous pommel with lanyard hole.** KR101733427B1: Protrusion at the end of the handle functions as an anvil for batonning (wood-splitting), which is functionally similar to F4 but is located at the handle pommel, not at the fore-end of the blade spine. *** EP1272316B1: Detachable wedge/hammer combination that forms a hatchet — striking capability is provided by a removable separate component, not an integral strike plate on the blade spine.

3. INVENTION SUMMARY

3.1 Technical Field

Hand tools; specifically fixed-blade outdoor and camping knives/tools with multi-function blade and ergonomic handle design.

3.2 Problem Addressed

Campers and outdoor enthusiasts typically must carry multiple specialized tools (knife, saw, trowel, splitting wedge, etc.) to perform common campsite tasks. The invention addresses the need for a single, fixed-blade tool that can perform cutting, digging/trenching, wood sawing/rasping, kindling splitting, and provide secure grip under vigorous use conditions.

3.3 Proposed Solution

A 13-inch fixed-blade stainless steel tool (wooden or composite handle) that integrates the following into a single, fixed-blade body: (1) primary cutting edge; (2) rounded/spade-like blade tip; (3) spine-side saw-toothed rasp; (4) integral fore-spine strike plate for batoning/splitting; and (5) a three-element handle system (bulbous pommel + hilt guard + lanyard hole) for retention under hard use.

3.4 Key Inventive Features

- F1:** Full-length cutting blade — stainless steel, fixed blade, approximately 13 inches
- F2:** Rounded blade tip — designed for trenching/digging into soil
- F3:** Saw-toothed edge along the spine — for use as a rasp or rudimentary wood saw
- F4:** Strike plate at the fore-end of the blade spine — a reinforced surface designed to be struck with a log or tool to drive the blade through larger wood for kindling splitting
- F5:** Bulbous/widened pommel end — wider terminal end of the handle for improved grip retention
- F6:** Hilt/guard — cross-guard or collar preventing the hand from sliding forward over the blade
- F7:** Lanyard hole — aperture at the handle end for attaching a retention lanyard

3.5 Point of Novelty

The primary point of novelty is the **specific combination** of: (a) a rounded digging tip (F2), (b) a spine-side saw/rasp edge (F3), and (c) an **integral strike plate at the fore-end of the blade spine** (F4) — all integrated into a single fixed-blade camping tool with a three-element handle ergonomics system (F5 + F6 + F7). Among the individual features, F4 (the integrated blade-spine strike plate for

kindling splitting, located at the fore-end of the blade spine rather than at the handle end) appears to be the most potentially distinctive element not clearly disclosed in the surveyed prior art in this specific structural location and combination.

3.6 Intended Scope of Protection

Apparatus — a physical hand tool. Potentially claims an apparatus claim covering the full combination of blade features and handle features, and/or narrower claims directed to the specific combination of the strike plate (F4) + rounded tip (F2) + spine serrations (F3) in a single fixed-blade tool.

4. PRIOR ART REFERENCES

4.1 Reference Summary Table

#	Reference	Title	Date	Source	Classification
1	US5442856A (Individual)	Survival and camping tool	1995-08-22	Granted Patent	Combinable
2	CA2129395A1 (Individual)	Survival and camping tool	1995-12-01	Published Application	Background (family of Ref 1)
3	RU2110034C1	Survival knife	1998-04-27	Granted Patent	Combinable
4	RU4597U1	Survival knife	1997-07-16	Granted Utility Model	Combinable
5	KR101733427B1	Bivouac knife	2017-05-11	Granted Patent	Combinable
6	DE10130178A1 (Danny Reinhold)	Multi-component multifunctional survival knife	2003-01-09	Published Application	Background
7	EP1272316B1 (MustAx Ltd Oy)	Knife, hatchet and hammer combination tool	2004-09-29	Granted Patent	Background
8	US4688287A (Individual)	Wilderness survival tool	1987-08-25	Granted Patent	Background

4.2 Detailed Reference Descriptions

Ref 1 — US5442856A: Survival and camping tool (1995)

This is a primary Combinable reference. It discloses a fixed-blade survival and camping tool with an elongated metal body (high carbon Swedish spring steel, ~16 inches total, approximately 5-inch handle, ~11-inch blade). The blade has a **linear side edge** that "can be either straight, serrated or formed with a saw-tooth edge" (Description, Summary section) — covering F1 and optionally F3. The **circular/rounded tip** (F2) is explicitly disclosed: "The body has a tip 20 with an arcuate, preferably circular configuration that extends on both sides of axis 14." The opposite side has a convex belly with a hook. The handle is a hard rubber grip on a handle tang; "Hook 16 and the handle at 36 prevent the tool from slipping out of the user's hand when he is engaged in a chopping motion" — partially related to grip retention but not a hilt guard or bulbous pommel in the described sense. No lanyard hole, no hilt/guard distinct from the hook, and importantly **no strike plate on the blade spine** (F4). Weight approximately 2 lbs.

Ref 3 — RU2110034C1: Survival knife (1998)

This is a Combinable reference for F3. The knife has a blade with a **saw on one side** (consisting of at least three rows of teeth along the blade thickness) and a straight cutting edge on the other side. The saw teeth are designed to prevent clogging with wood fibers. The opposite side has the cutting edge transitioning to "an edging going to the tip." **No rounded digging tip is disclosed** (the tip appears to terminate in a conventional pointed configuration). No strike plate (F4). No ergonomic handle features (F5, F6, F7) as described herein. The multi-row saw construction is the primary teaching.

Ref 4 — RU4597U1: Survival knife (1997)

A Combinable reference closely related to RU2110034C1, disclosing a survival knife with a **saw on the spine** formed by radial recesses, a cutting edge on the other side, and a hollow handle with an internal cavity for a survival kit. Also mentions a lanyard attachment element (claim 1: "an attachment element provided with fluorescent elements") — partially overlapping F7. No rounded tip (F2), no strike plate (F4), no hilt/guard (F6), no specifically bulbous pommel (F5).

Ref 5 — KR101733427B1: Bivouac knife (2017)

This is the most significant Combinable reference for the handle system features (F4 analog, F5, F6, F7). The knife includes:

- A **protrusion at the end of the handle that functions as an anvil**, used for batonning — splitting wood by striking (Description: "the protrusion 300 provided on the handle may protrude from the end of the handle 100 and may be made of any material that has a rigidity enough to easily break a hard object... provided to serve as an anvil, which is used as a support when a metal plate or the like is put on and knocked or tempered"). This is functionally similar to F4 but located at the **handle pommel end**, not at the fore-end of the blade spine.
- A **hole 350 in the protrusion 300** for lanyard attachment (F7): "a lanyard is a line connected to a knife or the like... provided with a hole (350) so that it can be detached."
- A **grip portion 400** designed to be "recessed according to the shape of the finger wrapping around the grip portion" for improved grip (related to F5/F6).
- The handle is described as having different upper/lower lengths to improve batonning performance and reduce injury (Claim 2).
- A **through hole 500** for connecting handle straps.

The key distinction from F4 is structural: the KR reference places the anvil/striking surface at the pommel (rear) end of the handle, whereas the instant invention places the strike plate at the **fore-end of the blade spine** (near the blade tip). This structural difference has functional implications: the present invention allows the strike plate to be hit while the blade is seated in wood for splitting, from the tip end, rather than striking from the handle end.

Ref 6 — DE10130178A1 (2001)

Background. A multi-part multifunctional survival knife disclosing a smooth edge, corrugated edge (similar to serrated), an impact saw on the spine working on both pull and push, and multiple accessory functions. The saw and dual-edge teaching overlaps F1 and F3. The system is multi-part (three components), not a single fixed-blade tool. No rounded tip, no strike plate, no ergonomic handle system as described.

Ref 7 — EP1272316B1 / WO2001072481A1 (MustAx, 2000)

Background. A knife-hatchet combination tool where a detachable wedge portion (optionally with a hammer head) is mounted to the back of the knife blade to form a hatchet. Striking/splitting capability is provided by the detachable wedge, not an integral blade-spine feature. Does not disclose a fixed/integral strike plate at the fore-end of the blade spine, nor F2, F3, F5, F6, or F7.

Ref 8 — US4688287A (1987)

Background. A wilderness survival tool with a folding knife whose handle has a transverse axe blade at one end and a passage for mounting on native wood to form an axe. The handle also has a protuberance with a flat face used as a hammer or mallet — functionally related to both F4 and F5 analogs but in the context of a folding knife system, not a fixed-blade tool, and the striking surface is at the handle end, not the blade spine fore-end. No F2, F3 (within the blade), F6, or F7.

5. NOVELTY ANALYSIS

5.1 Anticipation Assessment

US5442856A: Does **NOT** anticipate. Discloses F1 (cutting blade), F2 (circular/rounded tip), and implicitly allows F3 (states the linear edge "can be" saw-toothed, but does not teach F3 as a realized, primary feature). Missing F4 (no strike plate on blade spine), F5 (no bulbous pommel — only hook at handle outer end), F6 (no distinct hilt/guard), and F7 (no lanyard hole). Multiple features missing.

RU2110034C1: Does **NOT** anticipate. Discloses F1 and F3 (saw on spine). Missing F2 (no rounded tip), F4, F5, F6, and F7.

RU4597U1: Does **NOT** anticipate. Discloses F1 and F3. Partially overlaps F7 (fastener/attachment element). Missing F2, F4, F5, and F6.

KR101733427B1: Does **NOT** anticipate. Discloses F7 (lanyard hole in protrusion), an analog of F4 at the handle pommel (anvil function) rather than at the blade spine fore-end, and grip features related to F5/F6. Missing F2, F3, and the specific structural location of F4.

DE10130178A1: Does **NOT** anticipate. Discloses F1 and F3 (saw on spine). Multi-part system; missing F2, F4, F5, F6, F7.

EP1272316B1: Does **NOT** anticipate. Discloses a knife with optional detachable striking/wedge portion. Missing F2, F3 (within single-blade context), F4 (integral), F5, F6, F7.

US4688287A: Does **NOT** anticipate. Different tool architecture (folding knife + axe head handle). Missing F1 (no fixed blade in the described manner), F2, F3, F4 (integral to blade spine), F5, F6, F7.

5.2 Novelty Conclusion

No single identified prior art reference discloses all seven key features of the invention. The invention appears **potentially novel** over the identified patent prior art. The most closely related references are US5442856A (F1, F2, partial F3) and KR101733427B1 (F4 analog, F5, F6, F7), but neither individually — nor any other single reference — discloses the full combination. The most distinctive individual feature is F4 (strike plate at the fore-end of the blade spine), which has not been found in this specific structural configuration in any identified reference. The feature combination of F2 + F3 + F4 on a single fixed-blade tool appears to distinguish the invention from the closest prior art.

6. NON-OBVIOUSNESS / INVENTIVE STEP ANALYSIS

6.1 Prior Art Landscape

The field of multi-function survival and camping knives is crowded. The prior art as a whole teaches:

- Fixed-blade survival knives with cutting edges, serrated/saw-tooth spine edges, and various handle configurations are well-established (US5442856A, RU2110034C1, RU4597U1, DE10130178A1).
- Rounded or circular tips on camping/survival tools for dual-purpose cutting and digging use are known (US5442856A, CA2129395A1).
- Ergonomic handle design for knives, including guards, pommel features, and lanyard holes, is extensively documented (KR101733427B1, numerous others).

- The concept of using the spine or a structural element of a knife/tool for striking and splitting wood (batonning) is recognized in the art — KR101733427B1 explicitly includes a handle-end anvil for this purpose, and EP1272316B1 teaches a detachable wedge/hammer head on the blade back.
- Combining saw-toothed spine elements with cutting edges in survival knives is commonplace (RU2110034C1, RU4597U1, DE10130178A1, CN206048275U).

6.2 Differences from Inventive Concepts

Closest prior art (US5442856A) — differentiating features:

- F3: Not primary teaching — only mentioned as an option
- F4: Not disclosed in any form
- F5: Not disclosed (hook at handle end is functionally related but structurally distinct)
- F6: Not disclosed as a separate hilt/guard element
- F7: Not disclosed

Second closest prior art combination (US5442856A + KR101733427B1 + RU2110034C1):

Combining these three references would cover F1, F2, F3, F4 (as an analog), F5, F6, F7. The key remaining distinction is the **structural placement of the strike plate on the blade spine fore-end** (F4 as claimed) vs. the handle-end anvil in KR101733427. This structural distinction may or may not be characterized as a non-obvious difference depending on the breadth of any eventual claim.

6.3 Potential Combinations and Motivation

Combination 1: US5442856A + KR101733427B1 + RU2110034C1

- US5442856A provides the foundation tool concept with rounded tip and large camping blade
- RU2110034C1 adds the spine saw/rasp teaching
- KR101733427B1 adds the batonning/anvil function (at handle end), lanyard hole, and grip ergonomics

Motivation to combine: A skilled artisan seeking to improve a camping knife tool (starting from US5442856A) would likely look to existing survival knife art for grip improvements and multi-function blade features. The motivation to combine spine serrations (known from RU2110034C1) with the existing tool is straightforward — both address outdoor multi-use. The motivation to add a batonning/splitting function (from KR101733427B1) is also strong, as kindling splitting is a recognized common camping need.

Potential obstacle to combination: The specific relocation of the striking surface from the handle pommel (KR101733427B1) to the fore-end of the blade spine (F4) may involve a design choice that is not merely a predictable rearrangement of known elements. The placement on the blade fore-spine allows the blade to be driven into wood from the tip end in a log-splitting motion, which is mechanically distinct from using a handle pommel as a striking point. Whether this distinction would support a non-obviousness argument depends on the functional advantage asserted and how it is claimed.

Combination 2: US5442856A + RU2110034C1 (for F3 omission in Ref 1) Would cover F1, F2, F3 — but leave F4, F5 (distinct), F6, F7 unaddressed from the prior art combination.

Non-Obviousness Assessment: The full combination of all seven features (F1–F7) in a single, fixed-blade tool has not been found in any single reference or obvious combination. A skilled artisan likely could have assembled these features by combining known elements, as each individual feature is known in the art. However, the specific integration of a fore-spine strike plate (F4) in combination with a rounded digging tip (F2) and spine saw (F3) — all on a large fixed-blade camping tool — is a specific configuration that may not have been obvious to try without knowledge of the invention. The strength of any non-obviousness argument will depend heavily on: (a) how the claims are drafted (full combination vs. narrower subsets), (b) any evidence of unexpected results or commercial success (secondary considerations), and (c) whether F4 as a blade-spine feature (rather than a handle pommel feature) is claimed with sufficient specificity to distinguish KR101733427B1.

7. SEARCH METHODOLOGY

7.1 Search Method: Semantic search via FluidityIQ Patents MCP (search_patents and patent_details tools). Four rounds of searching executed:

- Round 1: Primary broad query (fixed-blade multi-function camping tool, all features combined)
- Round 2: Sub-queries decomposed by feature cluster (strike plate/batoning; spine serrations + rounded tip; handle ergonomics)
- Round 3: Refinement queries incorporating terminology harvested from Round 1/2 results (batonning, survival knife, bivouac knife, spine saw)
- Round 4: Targeted gap-fill queries (strike plate/batoning surface on blade spine; spine saw + rounded tip combination)

7.2 References Categorized:

- Anticipatory: 0
 - Combinable: 4 (US5442856A, RU2110034C1, RU4597U1, KR101733427B1)
 - Background: 4+ (CA2129395A1, DE10130178A1, EP1272316B1, US4688287A, and additional low-relevance references not individually described)
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8. LIMITATIONS AND CAVEATS

1. **Assumptions:** (a) Jurisdictions of interest were not stated in the disclosure — no jurisdiction filter was applied; search results include US, EP, CN, KR, RU, DE, JP, and other jurisdictions. (b) The intended scope of protection (apparatus claims only vs. method claims for using the tool) was inferred as apparatus/product claims. (c) The point of novelty was derived from the disclosure features, as no explicit novelty statement was provided. (d) Material specifications (specific stainless steel grade) and dimensional tolerances (precise blade dimensions beyond "13 inches") were not stated and not specifically searched.
2. **Non-patent literature not searched:** This search covers patent documents only (granted patents and published applications). Non-patent literature (product catalogs, trade publications, online retail listings, YouTube/survival blog disclosures), products on sale (commercial survival knives with similar features), public use evidence, and oral disclosures were not searched and may constitute prior art. The camping/outdoor tool market includes numerous commercial products; a product search is strongly recommended.
3. **18-month secrecy window:** Patent applications filed within approximately the last 18 months (mid-2023 to present) may not appear in search results. This period may contain relevant pending applications.
4. **Semantic search limitations:** Semantic search may miss references using significantly different terminology or framing. The term "batoning" and associated concepts for wood-splitting by striking a blade spine are used in outdoor communities but may not appear consistently in patent claims. Design patents (ornamental) for camping knives were not systematically analyzed.
5. **Chinese utility model art:** Several Chinese utility model patents appeared in results and were reviewed at the abstract level. Machine-translated abstracts may introduce inaccuracies; full manual translation was not performed.
6. **Professional review required:** This report is analytical support — it does not constitute a legal opinion. All conclusions regarding novelty and non-obviousness should be reviewed by a registered patent attorney or agent before filing decisions are made.
7. **FTO caveat:** This search was conducted for patentability (novelty/non-obviousness of the invention as a candidate for patent protection). It does not constitute a freedom-to-operate analysis

— the identified references (particularly KR101733427B1 and US5442856A) may have claims that read on aspects of the proposed product and should be reviewed by counsel for FTO purposes.

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