PATENTPULSE AI · DAILY PATENT ALPHA

Sample Brief: Medical devices

October 20, 2026 · 4 newly published USPTO applications, ranked by Signal Score

Real USPTO applications published in the last 60 days. Analysis is AI-generated opinion, not legal or investment advice.

AT A GLANCE

#2 **Sensor feedback for powered surgical tools**

Licensing play · UPMC

#3 **FTL smoothing for continuum robot**

Early-stage bet · CANON U.S.A., INC.

#4 **ECAP ramp for stimulator threshold detection**

Watch competitor · Medtronic, Inc.

TOP PICK

#1 Automated K-wire to pedicle screw platform

AUTOMATIC SCREW-PLACEMENT SYSTEM AND AN ORTHOPEDIC SURGICAL ROBOT

Early-stage bet | MedTech | #1 of 100 screened in sample window

Applicant: TINAVI MEDICAL TECHNOLOGIES CO., LTD. • **Inventor:** Yue ZHOU +2 • **Entity:** Small • **CPC:** A61B 17/88, A61B 34/30, A61B 17/848 +1

Pub. No. US20260315126A1 • App. No. 19464052 • Filed 2026-01-29 • Published 2026-10-15



Narrow integration claims on K-wire and screw modules; no commercialization data in record.

WHY THIS ONE STANDS OUT

The problem it solves: Integrating Kirschner-wire positioning and pedicle screw implantation into one power platform.

Likely buyers & why: Medtronic: may seek to license integrated insertion modules; Stryker: could be blocked by claims on milling assembly with screw body

What makes it hard to copy: Easy to copy; claims recite conventional components without novel interaction details.

WHAT TO DO NEXT

1. Review full prosecution history for claim amendments
2. Search prior art on milling assembly in pedicle screws

View USPTO publication (PDF) →

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.

THE FULL RANKING

PatentPulse Signal Score (0–100): market pull 25% · acquisition interest 25% · defensibility 20% · innovation 15% · timing 15%, each scored by Grok from the application's abstract and independent claims. Honest absolute scale: a typical published application scores lower; 65+ is strong; 75+ is exceptional. Published applications are not granted patents; claims may change.



#2 Sensor feedback for powered surgical tools

DEVICES, SYSTEMS, AND METHODS FOR CONTROLLING POWERED SURGICAL INSTRUMENTS

Licensing play | MedTech | #2 of 100 screened in sample window

Applicant: UPMC • **Inventor:** David H. Chi +5 • **Entity:** Small • **CPC:** A61B 34/30, A61B 90/04, A61B2034/107 +15

Pub. No. US20260315173A1 • App. No. 19484556 • Filed 2025-11-14 • Published 2026-10-15



Broad functional claims on sensor control; no tech specifics or data in record

WHY THIS ONE STANDS OUT

The problem it solves: Risk of injury to non-targeted tissue during use of powered surgical devices

Likely buyers & why: Intuitive Surgical: sensor control on robotic systems; Medtronic: feedback on powered tools

What makes it hard to copy: Easy to copy; claim 1 is purely functional with no structural limits

WHAT TO DO NEXT

1. Review full file history for rejections and amendments
2. Search for prior art using CPC codes listed in the publication

Key risks: Claims may narrow substantially in prosecution; No enabling disclosure or examples in record • **Alice/§101:** High – purely functional language with no specific implementation details

View USPTO publication (PDF) →

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.



#3 FTL smoothing for continuum robot

FOLLOW-THE-LEADER (FTL) SMOOTHING FOR A CONTINUUM ROBOT

Early-stage bet | Robotics | #3 of 100 screened in sample window

Applicant: CANON U.S.A., INC. • **Inventor:** Brian Ninni +1 • **Entity:** Regular Undiscounted • **CPC:** A61B 34/30, A61B 34/37, A61B 34/20 +4

Pub. No. US20260315168A1 • App. No. 19485986 • Filed 2025-11-19 • Published 2026-10-15



Continuation with truncated broad claims on FTL smoothing; no product or data in record

WHY THIS ONE STANDS OUT

The problem it solves: Correction, adjustment, and/or smoothing for continuum robot sections during movement

What makes it hard to copy: Storing distal bending pose plus motorized linear stage or sensor state for smoothing

WHAT TO DO NEXT

1. Review full specification for embodiments
2. Search parent application file history

Key risks: Claims may narrow in prosecution; No commercialization details in record • **Alice/§101:** Medium – method claims on robot control may face eligibility scrutiny

View USPTO publication (PDF) →

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.



#4 ECAP ramp for stimulator threshold detection

AUTOMATED PROGRAMMING BASED ON ECAP SIGNALS

Watch competitor | MedTech | #4 of 100 screened in sample window

Applicant: Medtronic, Inc. • **Inventor:** Jerel K. Mueller +9 • **Entity:** Regular Undiscounted • **CPC:** A61N 1/36139, A61N 1/36062, A61B 5/311 +10

Pub. No. US20260315802A1 • App. No. 18998795 • Filed 2025-01-27 • Published 2026-10-15



Narrow ramp-and-sense ECAP threshold method; continuation limits breadth.

WHY THIS ONE STANDS OUT

The problem it solves: Determine therapy threshold from ECAPs while iteratively increasing pulse amplitude up to a preset maximum.

Who would pay for it: Medtronic competitors seeking automated programming features in neuromodulation devices.

Likely buyers & why: Boston Scientific: needs license for ECAP-based closed-loop programming; Abbott: blocked from ramp-based ECAP threshold detection

What makes it hard to copy: Claims require the specific combination of upward ramp plus per-pulse ECAP analysis to set thresholds.

WHAT TO DO NEXT

1. IP counsel review full continuation chain for broader parents
2. MedTech VC map Medtronic's ECAP product launches against these claims

Key risks: Continuation may narrow further in prosecution; Easy to sense ECAPs outside ramp sequence • **Alice/§101:** Low – medical device system claim with concrete sensing and control steps

View USPTO publication (PDF) →

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.

Pick to Act On: diligence plan

One-page plan for the top-ranked application in this brief.

What it claims	System with K-wire (needle body/head/tip), pedicle screw (body + milling assembly), and power platform (pin-insertion + screw-insertion modules) for spine.
For investors	whether the integration yields commercial advantage.
For IP counsel	Independent claim 1 recites specific K-wire and milling assembly components; design-
Alice / §101 risk	Low – claims recite physical surgical hardware components
Acquirers to watch	• Medtronic: may be blocked from similar integrated modules • Stryker: may need license for automated spine screw systems

DILIGENCE CHECKLIST (3–5 DAYS)

1. Does the full file history show any office actions?
2. What foreign priority documents disclose the milling assembly?
3. What is the priority date, and how many independent claims are likely to survive Alice/Mayo analysis?
4. Are continuation or divisional applications pending?
5. What is the filing footprint beyond the USPTO (PCT, EP, CN, JP)?

KEY RISKS

- Continuation status may narrow claims further
- No data on regulatory path or prototypes in record
- Prior art density in robotic spine surgery unknown from record

PLAYBOOK BY ROLE

VCs / founders: identify the assignee; if it is a startup, explore licensing or an early investment conversation.

IP counsel: pull the published claims and file wrapper; assess freedom-to-operate and continuation strategy.

Strategic buyers: add to the watchlist and track prosecution; claims may change before grant.

View USPTO publication (PDF) →

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.

PATENTPULSE AI

Get picks like these every week

The free weekly digest sends picks like these.

> The week's top picks with Signal Scores, from real USPTO filings.

Get the free weekly digest

patentpulse.io

Source: USPTO Open Data Portal (published applications). Scores and analysis generated by Grok. Not legal or investment advice.